

NON-MALIGNANT OESOPHAGO-BRONCHIAL FISTULA IN THE ADULT

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A perforation of the oesophagus may track in many directions, eventually communicating with other organs. The track may end blindly in the mediastinum; may discharge on the skin of the neck, chest or even the loin; or may enter the pericardium, pleural cavity or tracheo-bronchial tree.

Of the various causes of oesophageal perforation, malignant disease is certainly the commonest and is usually oesophageal in origin, though malignancies of the thyroid, trachea or bronchi have rarely been known to cause fistulae leading into the oesophagus.

Non-malignant causes are varied. Congenital fistulae are usually associated with some form of oesophageal atresia and present clinically soon after birth; these have been well documented. Congenital fistulae without atresia, however, may only present in adult life. The acquired forms may be either traumatic or inflammatory in origin (Table I).

TABLE I. AETIOLOGY OF OESOPHAGO-BRONCHIAL FISTULAE

1. Malignant disease.
2. Congenital: (a) associated with oesophageal atresia; (b) without atresia, usually presenting in adults; and (c) associated with oesophageal diverticulum and possibly other congenital abnormalities.
3. Acquired non-malignant:
 - (a) Inflammatory: tuberculosis; syphilis; oesophagitis, e.g. corrosives; actinomycosis; pyogenic empyema; and traction diverticulum.
 - (b) Traumatic: oesophageal foreign body; instrumental dilatation; penetrating wounds; operative; and extrapleural 'lucite' plombage.

Relatively few perforations track further than the mediastinal tissues, and even though fistulae into the tracheo-bronchial system are probably the commonest of those that do go beyond the mediastinum, only 84 reports of acquired non-malignant fistulae of this sort could be found in the literature from 1916 to 1954.^{1,2} In 53 the exact site was known. Of these, 25 communicated with the trachea, and those involving a bronchus were sited thus: 14 in the right main bronchus, 6 in the left main bronchus, 5 in the right lower lobe bronchus, and 3 in the left lower lobe bronchus.

The symptomatology is variable and depends partly on the particular aetiology. Thus a diverticulum may give evidence of its presence by the symptom of dysphagia before the fistula is formed. Similarly, the infective causes and some of the traumatic ones may present initially as mediastinitis. However, once a fistula is established, there is almost invariably some pulmonary symptom to indicate pulmonary infection. It is to be noted that infection in the lungs is not uncommonly associated with oesophageal lesions from spill-over at laryngeal level, so that a fistula is by no means

always present when oesophageal and pulmonary disease are combined.

The characteristic symptom of a fistula is a bout of coughing associated with the ingestion of food or fluid; this is not, however, always found, particularly in the rare congenital fistulae in adults. It must depend in part on whether the size and direction of the fistula allows material to pass into the lung.

The following are 4 illustrative case reports:

CASE REPORTS

1. G.G., a Coloured female of 19 years, complained of repeated haemoptyses over the previous 3 years; the bleeding had on occasion lasted as long as a month. She had some cough, but little sputum had been produced during this period. Investigation revealed that she had bronchiectasis of the left lower lobe, and on bronchoscopy the degree of inflammation of the bronchial mucosa was marked (Fig. 1). However, no suspicion of any fistula was raised before operation.



Fig. 1. Case 1. Bronchiectasis of the left lower lobe shown on oblique bronchogram.

At operation the lobe was densely adherent to the chest wall and to the diaphragm. The hilar glands were enlarged and the lobe felt somewhat firm and partly atelectatic. Just above and behind the inferior pulmonary vein a tube-like structure was found, which proved on further dissection to be an oesophago-bronchial fistula, entering the apex of the lower lobe. It was approximately 1 cm. in diameter and was easily displayed, with little surrounding inflammation outside the lobe. In contrast, the hilar hilum was densely matted with inflammatory tissue. A short segment was excised with the lobe and the oesophagus closed with two layers of silk sutures. There was a severe post-operative infective period, almost septicaemic, but recovery was satisfactory.

Histologically, the fistula was lined with squamous epithelium and its wall contained smooth muscle. It can thus be assumed that this was an example of the rare congenital type of fistula without any oesophageal atresia.

2. T.Z., an African female of 26 years, had noticed some dysphagia for about a year with a recent mildly-productive cough. There had been no acute initial episode which could indicate any trauma or infective element, and there was no relationship between the cough and the taking of food. Lipiodol swallow and bronchography showed a small fistula from the middle of the oesophagus entering the right lower lobe. In addition there was an almost complete block of the middle-lobe orifice and the intermediate bronchus was narrowed almost concentrically (Fig. 2).

When endoscopy was performed the fistula could not be visualized, though some bubbling in the oesophagus was noted with respiration at one point. There was no noticeable narrowing of the oesophageal lumen. The bronchographic findings were confirmed, and a biopsy taken from the granular middle-lobe orifice revealed chronic inflammatory tissue.

At thoracotomy the pleural cavity was found to be obliterated by diffuse adhesions and the pulmonary hilum was a solid mass of fibrous tissue, so that the individual structures could not be defined. Eventually, by tracing the oesophagus up from below, it was possible to isolate the fistula. It was less than 1 cm. in length

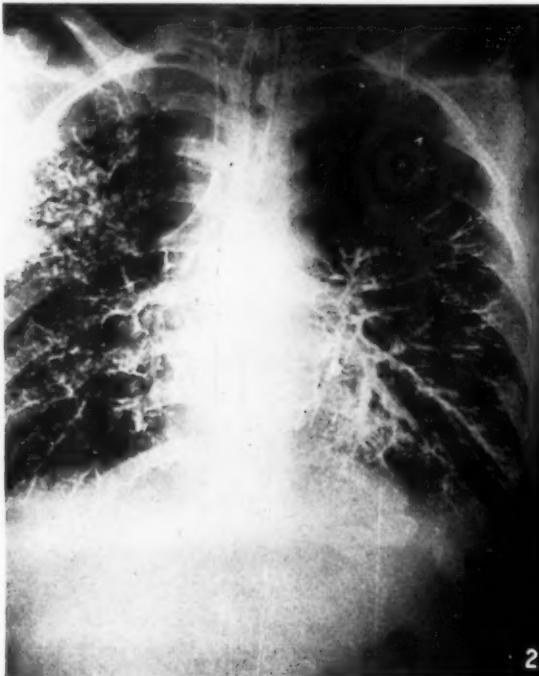


Fig. 2. Case 2. Retouched film of bronchogram showing fistula entering right lower lobe.

before it disappeared into the fibrous tissue of the hilum, and about 1 cm. in diameter. There was some surrounding inflammatory tissue even at the oesophageal end. The fistula was transected close to the oesophageal wall, carbolized and closed with silk sutures.

The atelectatic middle lobe was removed with some difficulty. Histologically it showed foreign-body giant cells, fat particles, peribronchial inflammatory cuffing and marked fibrosis, consistent with pneumonia on the basis of the inhalation of food particles. Recovery was uneventful.

The exact aetiology in this case is unknown, though the ingestion of some foreign body such as a bone must be quite likely. The hilar fibrosis was presumably due to the chronic non-specific inflammatory process and was not the aetiological factor. There was no evidence of actinomycosis.

3. M.M., an African male of 48 years, had fairly recent dysphagia with cough and sputum. There had been marked loss of weight and his general condition was poor. Barium swallow revealed a large, dependent oesophageal diverticulum in the lower thorax, tracking to the right and eventually communicating with the right lower lobe (Fig. 3). Bronchography showed gross bronchiectasis of the right middle and lower lobes with dye entering the diverticulum; the intermediate bronchus was markedly narrowed (Fig. 4).

When endoscopy was performed, the oesophagoscope passed readily into the mouth of the diverticulum, which was not inflamed; in fact, its appearance was that of a second oesophagus.

Gastrectomy was performed because of the poor general state of the patient and his improvement was slow. It was about 3 months before thoracotomy was deemed advisable. In spite of the delay in operating, there was gross inflammatory change in and around the lung with a completely matted hilum. The fistula was closed distally and the basal segments removed as rapidly as possible, but the patient succumbed soon afterwards. Histology of the removed lung was similar to the previous case.

4. N.B., an African female of 54 years, had had 2 months' dysphagia with loss of weight. On investigation, extremely gross oesophagitis was found with an obstruction at the diaphragmatic



Fig. 3. Case 3. Barium swallow showing large oesophageal pouch with barium in the bronchi.



Fig. 4. Case 3. Bronchogram showing gross bronchiectasis of the right middle and lower lobes.

level. Abdominal exploration was performed and the fistula was closed. The basic oesophageal fistula was closed. The patient was well until the following day when he developed a diffuse infiltrate in the right lung.

Congenital oesophageal fistulae are rare. Although they were first described in 1854, he has had only a few cases reported. In which most of the cases were incomplete, with symptoms of dysphagia and cough. Some cases have been reported in which the fistula was associated with other anomalies.

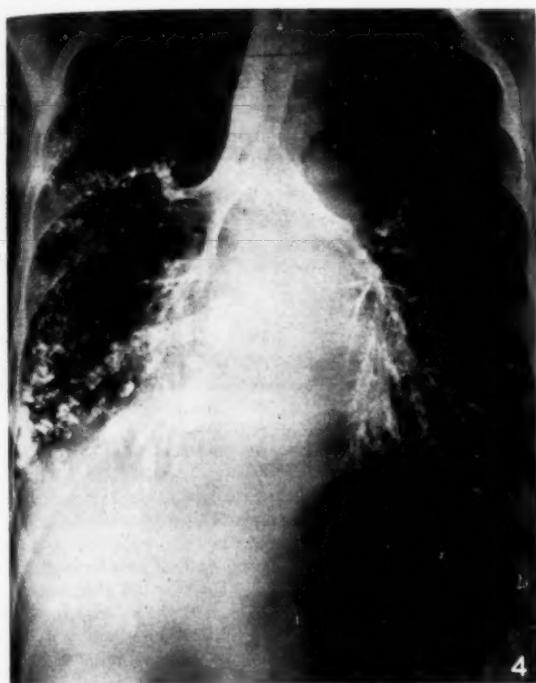


Fig. 4. Case 3. Bronchogram showing right basal bronchiectasis, dye in the oesophageal pouch, and the narrowed intermediate bronchus.

level. About 3 inches above the obstruction a small fistula was demonstrated entering the apex of the left lower lobe. Gastrostomy was performed and the oesophagitis gradually resolved with closure of the fistula. Subsequent operation revealed that the basic obstruction was from a carcinoma of the lower end of the oesophagus. The site of the fistula was not seen; radiologically it was well above the neoplasm and must have been caused by the diffuse inflammatory reaction resulting from stagnation of food.

DISCUSSION

Congenital Causes

Congenital oesophago-bronchial fistula in the adult, though rare, has been well reported by Mullard.³ Up to 1954, he could find only 11 case reports in the literature which had been adequately documented; there were some 6 others which might have been included, but where the data were incomplete in some way. Of the 11 cases, 2 involved the trachea and the rest one or other bronchus. Only 2 had symptoms dating from infancy, in contrast to the patients who had atresia as well. One patient had no symptoms from the fistula at all, but the majority admitted to cough associated with the ingestion of food at some stage.

Recurrent attacks of pneumonitis usually occur, and perhaps more patients with such symptoms should be investigated with a fistula in mind. Mullard suggested that these fistulae might be found more commonly if such patients were given a lipiodol swallow in the prone position. He also made the point that oesophago-tracheal fistulae could easily be missed at operations for pulmonary resection, and the occasional case of progressive pulmonary suppuration seen after resection could be from such a cause.

Subsequently Lansden and Falor⁴ reported 2 cases, both of which had a long history of symptoms, the one dating from birth. One involved the trachea and the other the right main bronchus. This case was found accidentally during a barium-meal investigation on a patient who was found later to have a rectal carcinoma; on further questioning, he admitted to a cough for the previous 40 years.

The majority of the above patients have been treated by operation; this is generally necessary to establish histologically the congenital nature of the fistula. One, however, was treated with apparent success by cauterization. At operation the lung is usually densely adherent and dissection is difficult. This is exemplified by a case reported by Berman *et al.*⁵ where a basal fistula was merely ligated as a first-stage procedure and 18 days later a pneumonectomy was performed, since the hilum could not readily be dissected for a lobectomy. However, there have been few fatalities and most patients have been cured.

Various suggestions have been offered why symptoms should so often be apparent only in adult life. The direction of the fistula may be a factor, but the fistulae are usually very short, perhaps $\frac{1}{2}$ - 1 cm. A membranous fold which breaks open later in life is possible, and this could then almost be regarded as a form of congenital oesophageal diverticulum. Movement of the oesophageal mucosa with peristalsis to raise a fold over the fistula would need some explanation of why this mechanism should later fail. It may be that some infective episode sets the stage by producing relative fixation to the chest wall and mediastinum, so that normal descent of the oesophagus and particularly of its mucosa on deglutition is upset.

Some forms of oesophageal diverticula appear to be congenital anomalies of the foregut similar to reduplications. Case 3 in this series presented features which suggested that the pouch was like a second oesophageal tube extending for some inches in a downward direction. These dependent diverticula, seem, not infrequently, to develop infection at their distal tip, presumably from stasis, particularly of solid material, and this may lead to rupture into the lung. Monod⁶ reported 3 epiphrenic diverticula associated with lung abscess due to fistula formation. Johansson and Michau⁷ found 3 pulmonary fistulae in 7 intrathoracic oesophageal diverticula, all in adult female patients; the fistula in each case was found only at operation. On the other hand, Harrington⁸ found no fistula in 8 pulsion diverticula, although one was inflamed at its tip and was adherent to the lung.

A more complicated congenital anomaly with oesophago-bronchial fistula has also been reported. In 2 cases,^{9,10} there was so-called sequestration of the left lower lobe associated with an oesophageal diverticulum and the later development of a fistula into the lung. One of these⁹ had a track leading up from the oesophagus below the diaphragm for about 10 cm. before entering the left lower lobe; it was first noticed during operation, which was undertaken for bronchiectasis.

Thus there may be varied forms of congenital anomalies associated with an oesophago-bronchial communication, and if it is suspected clinically, it is usually possible to delineate it with opaque media.

Acquired Causes

The acquired varieties of non-malignant fistulae have been reported by Coleman and Bunch for the years 1916 - 1949.¹

Hughes and Fox² extended this to 1954 and, including 2 cases of their own, they found a total of 84 reported cases. In only 53 of these was the exact site known and 28 of these were bronchial.

The aetiology of these 84 cases was as follows: 25 were produced by one or other form of trauma, 14 were tuberculous, 11 syphilitic, 12 associated with a diverticulum, 1 actinomycotic, 2 associated with broncholiths, and 19 were of undetermined origin.

Traumatic causes should be becoming less frequent now owing to the use of antibiotics and to prompt treatment for ingested foreign bodies. Damage due to endoscopy is often anticipated in difficult cases, and radiological assessment afterwards keeps a check on any developments. Infection can usually be quite readily controlled before any abscess or fistula can form.

The various infections are generally on the wane, though mediastinal tuberculous glands are still seen all too commonly. A syphilitic aetiology usually means a mediastinal gumma, though an aneurysm has apparently been known to lead to necrosis of both oesophageal and bronchial walls.

The type of diverticulum in acquired cases is not always clear. The traction type due to infection in a para-oesophageal gland is usually associated with healing of that focus, and is conical with a wide mouth so that stagnation and sepsis are not common. However, Harrington⁸ reported a case of a traction diverticulum, due to inflamed mediastinal glands, which later ruptured into the right main bronchus. The tuberculous cases are associated with caseous glands, but need not show the formation of a diverticulum.

Acute oesophagitis may be due to chemical irritation such as the swallowing of dye or the reflux of gastric juice in a hiatus hernia, or to infection from stagnation of food when there is some obstruction, as in case 4 in this series. It is uncommon for such oesophagitis to lead even to mediastinitis nowadays, so that fistula formation into a bronchus from this cause must be very rare.

Case 2 would fall into the undetermined group where one may speculate on the different possibilities. A small foreign body, such as a fish bone, might cause so little initial trauma that the incident is forgotten. Peptic ulceration has been suggested as a possible factor, perhaps caused by ectopic gastric mucosa in the oesophagus.

Rarely, a pyogenic pleural empyema has ruptured into the oesophagus,¹¹ and passing reference has been made to bronchial fistulae developing in a few such cases. Here the empyema dominates the picture.

In these acquired cases, even more so than in the congenital types, there is a striking amount of inflammatory change in and around the lung, so that any operative procedure is fraught with difficulty. However, in Hughes and Fox's series, of 31 cases treated by various means, 22 were cured; of 14 patients undergoing direct repair, 3 died. Thus the fistula may close on conservative treatment, though this necessitates gastrostomy in many cases (cf. case 4). Particularly, however, if there is any diverticulum of the oesophagus, operative measures will probably be needed. The particular operation depends on the exact pathology present, but in many patients it will entail lung resection in addition to closure of the fistula, since permanent damage in the form of bronchiectasis or chronic lung abscess may have occurred by the time the patient comes to operation.

SUMMARY

The aetiological factors leading to a fistulous communication between the oesophagus and the tracheo-bronchial system are discussed, with particular reference to the non-malignant forms. These may be congenital or acquired.

Illustrative cases of 4 types of fistula are reported.

Some aspects of other cases reported in the literature are mentioned, together with treatment. It is pointed out that most of these non-malignant fistulae can be cured. They are, however, uncommon and only about 100 have been recorded in the literature.

Thanks are due to Prof. J. H. Louw who referred cases 2, 3 and 4; to Mr. W. L. Phillips for permission to publish case 3; to the Superintendents of Groote Schuur and Somerset Hospitals for permission to publish these cases; and to Mr. B. Todt for the radiological reproductions.

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THE SOUTH AFRICAN MEDICAL CONGRESS, 24 - 30 SEPTEMBER 1961, CAPE TOWN

HOTEL ACCOMMODATION

The Forty-third Medical Congress of the Medical Association of South Africa will be held in Cape Town from 24 to 30 September 1961. Information regarding the Congress is published at regular intervals in the *Journal*. Although it is still relatively early, members who intend coming to Congress are requested to send in their Intention Forms as soon as possible.

Prospective visitors to the Congress are also requested to bear in mind that *hotel accommodation in Cape Town is somewhat limited* and that they should make the necessary reservations well

in advance of Congress. The Travel Bureau of the South African Railways has been appointed the official agent in this connection. Members are requested to contact their local agents who have been extensively circularized in this respect. In the small platteland towns the nearest stationmaster will handle the matter.

Make your reservations now in order to avoid disappointment. In the event of any difficulty, please write to Dr. J. C. Coetzee, Convener, Accommodation Sub-Committee, 43rd South African Medical Congress, P.O. Box 643, Cape Town.

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CAR COMPETITION IN AID OF BENEVOLENT FUND

Through the initiative of Mrs. E. Gétaz, a member of the Medical Wives' Association of the Natal Coastal Branch of the Medical Association, an opportunity has arisen for a considerable sum of money to be collected for the Benevolent Fund of the Medical Association. A Triumph Herald Coupé motor car has been donated as a prize in a competition by the Standard Triumph S.A. (Pty.) Ltd. company, and the competition is being organized on a national basis by the advertising consultants Lindsay Smithers (Pty.) Ltd. All proceeds from the sale of tickets, without any deduction whatsoever, will go to the Benevolent Fund.

This is a great opportunity for the Benevolent Fund, always hard-pressed to meet the many urgent and often tragic demands on its resources, to obtain R20,000 or more. A minimum of 75,000 tickets, to be sold at 25c each, will be issued. It is hoped that all members of the Association will cooperate both in buying and selling these tickets. Already a good deal of interest in this project has been shown by many Branches. The Natal Coastal Branch, of course, where the idea originated, will sell many tickets, and the Southern Transvaal Branch has asked for 40,000 tickets for sale in Johannesburg and elsewhere in its area. The Cape Western Branch hopes to sell at least 20,000 tickets.

The competition, the details of which are set out in an advertisement on page xiii of this issue of the *Journal*, is a simple one; further details of the rules are on the entry forms sold with each ticket. It is hoped that the winner of the competition will be presented with the motor car at the 43rd Medical Congress in Cape Town in September. Tickets will be on sale during July and August.

Dr. E. W. Turton, Chairman of Federal Council, has acknowledged that this competition, while a novel idea in the fund-raising activities of the Benevolent Fund, will be an excellent means of increasing its revenue, and calls on members of the Association and their wives to do all they can to sell the maximum number of tickets possible.

It is the wives of members who can probably do the most towards making this project a great success. Ladies' committees have already been formed, or are in the process of formation, in all the large centres in the country, and all doctors' wives who have not yet been called upon to help are earnestly requested to come forward to try to sell as many tickets as possible.

Some members may have reservations about this method of raising money for the Benevolent Fund. We ask them to remember a few important facts which we feel will put the matter in its correct perspective. Let there be no mistake about it—the Benevolent Fund needs money and needs it urgently. We know only too well how many doctors are cut

off in their prime, before they have been able to make suitable provision for their dependants. We know, also, that too many of our colleagues die in circumstances amounting almost to poverty, after years of hard work, selflessly done, leaving their widows and children often in need of food, housing and essential care. A review of the claim forms received by the managing committee of the Benevolent Fund makes heart-breaking reading. It is sad that so many claims have to be denied, or a few rands a month given where far more is required. The old belief that 'all doctors die wealthy' has long been shown to be no more than a myth. There have, up to now, been but few avenues open to the Fund to obtain capital for its needs. They are, briefly, contributions *in memoriam* and for services rendered, bequests by doctors, and donations. During the last few years many Branches have held special functions, such as dances or cinema shows, at which fairly large sums have been collected for the Fund. These efforts, worthy though they are, have not been sufficient to meet all the demands on the Fund.

The present competition can go far towards helping the Fund to help dependants of members who urgently need financial support. Doctors, more than any other members of the professions, possibly, give the public unstintingly of their services. With good reason, Medicine has been called 'the noble profession', and the amount of unpaid, honorary arduous work done willingly by the bulk of our colleagues does not go unremembered by their patients. Many *in memoriam* contributions are received by the Fund from grateful patients who know what sacrifices individual doctors have made for them in their life-times. We are certain that the response from the public to the sale of these tickets will be overwhelming when they know that all money received will go to the Benevolent Fund. There must be many members of the public who would wish to do what they can to help in some small way the dependants of those doctors who have died, after a life-time of hard and altruistic work, in poor financial circumstances.

For these reasons we are sure that the public will respond wholeheartedly to the appeal behind this competition—to support a Fund which caters for the dependants of our less fortunate colleagues.

Every Branch and Division of the Association will be informed about this competition and will be supplied with posters giving details about it, which can be placed in consulting rooms, hospitals and nursing homes. We are sure that members and their wives will see to it that no ticket is left unsold, indeed that further tickets will need to be printed to meet the demand for this magnificent gesture on behalf of our Benevolent Fund.

WYER OMVANG VAN MEDIESE DIENSTE

In 'n besonder interessante boek onder die titel *Concepts of Medicine*,¹ wat onlangs verskyn het en waarin 'n hele aantal besonder belangwekkende artikels deur vooraanstaande

medici dwarsoor die wêreld voorkom, is daar 'n hoofstuk wat deur elke geneesheer gelees behoort te word. Hierdie hoofstuk word genoem *The greater medical profession*, en dit is 'n

uittreksel uit 'n referaat wat dr. T. F. Fox 'n tyd gelede by die jaarlike vergadering van die Mediese Vereniging van Manchester gelewer het. Die referaat is in die *Lancet*² gepubliseer.

Die tema van dr. Fox se verhandeling kom daarop neer dat die mediese dienste wat aan die publiek gelewer word, gedurende die afgeloep aantal jare radikaal verander het, óók wat betref die persone wat daarby betrokke is en die beroep wat hulle beoefen. Tot nie so lank gelede nie was die geneesheer min of meer die alleenheer op die gebied van die beoefening van die medisyne. Vandag is dit anders. Om bevredigende dienste te lever, moet die geneesheer nou in die hospitaal saamwerk, en is hy afhanklik van die hulp van biochemici, fisici, aptekers, laboratorium-werkers, röntgenografiste, fisioterapeute, arbeidsterapeute en verpleegsters. En buite die hospitaal moet die geneesheer saamwerk en rekening hou met die dienste van die vervaardigers van medisynes, kraamverpleegsters, distriksvverpleegsters, maatskaplike werksters (en veral psigiatrys-gekoolde maatskaplike werksters), sielkundiges, psigoterapeute, ens.

Sommige van hierdie groepe lever dienste wat ons groepeer as goedgekeurde mediese hulpdienste. Almal van hulle maak egter 'n deel uit van wat dr. Fox noem „lede van die grotere mediese professie".

Omdat die mediese opleiding so veeleisend en moeisaam is, en omdat die werk wat ons doen so uiters verantwoordelik is, is ons as medici nog altyd geneig om onsself as 'n klas op ons eie te beskou. Daarmee is daar as sodanik niks verkeerd nie. Trouens, hierdie verhewe opvatting van ons doel en streef en status dien as spoorslag om ons eie ideale en maatstawwe van diens hoog te hou.

Waarmee daar egter wel iets verkeerd is, is die neiging wat soms by sommige van ons kollegas voorkom om die hulpdienste, waarna ons hierbo verwys het, as relatief minderwaardig te beskou. Dit is 'n opvatting wat met wortel en tak

uitgeroep moet word, reeds al aan die universiteit. Studente en geneesherre moet daartoe opgevoed word, deur voorbeeld en daad, om in te sien dat die geneesheer nie noodwendig 'n besondere begenadigde is wat, daarom uit die hoogte op ander onmisbare lede van die span wat ons genoem het, kan neersien nie. Die geneesheer is weliswaar 'n leier, maar in die ware sin van die woord is hy 'n leier onder die gelykes. In hierdie gesindheid moet die levering van mediese dienste dan ook beskou word. En met hierdie gesindheid moet ons ons kollegas wat die hulpdienste lever, ook bejën.

Ons wil die gedagte hier noem dat dit miskien goed sou wees om by geleentheid algemene kongresse te belê waarop geneesherre sowel as lede van die hulpdienste wat ons genoem het, veteenwoordig kan wees. Samesprekings op so 'n breë vlak sou veel kon doen om almal die relatiewe belang van elke lid van die span te laat insien. Veral sal dit goed wees om hierdie soort gesindheid aktief te propageer aan ons universiteite en opleidingskole.

Elkeen wat 'n insig het in die omstandighede van die samelewings waarin ons leef en in die menigvuldigheid van menslike probleme, sal besef hoe groot die omvang van die behoefté aan hulp en leiding aangaande gesondheidsake by die groot publiek is. Dit is ons plig om in al die vertakkinge van daardie behoefté te voorsien. Omdat daar egter nie genoeg van ons is nie, en omdat ons as geneesherre so dikwels byna uitsluitend besig is met ernstige liggaamlike siektes, is die hulp van al die lede van die terapeutiese span waarna ons verwys het, nodig. Laat ons dus in alle opregtheid en waardigheid meewerk aan die skepping en instandhouding van daardie grotere mediese professie waaronder die gesondheid en geluk van die mensdom as 'n geheel nie nagestreef en bereik kan word nie.

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FACTORS INFLUENCING THE BUTTERFAT-TOLERANCE TEST*

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Previous reports^{1,2} have stressed the greater and more prolonged alimentary lipaemia in patients with ischaemic heart disease, following the administration of a test meal of 70 G. of butterfat. Neither the age nor the race of the candidates tested influenced the tolerance to the test meal. In this paper an examination has been made of those factors thought likely to influence the fat-tolerance test.

INDIVIDUALS STUDIED

Altogether, 219 males were fed a test meal containing 70 G. of butterfat. The subjects were divided into an outpatient group comprising 149 volunteers and an inpatient group of 70. Each group, in turn, was formed of test subjects with proved myocardial infarction and control subjects with no clinical or electrocardiographic evidence of heart disease. There were 161 in the control group, and 58 in the test group. The candidates varied from 20 to 59 years of age, and were

divided into 2 age-groups—20-39 and 40-59 years. Members of the 3 racial groups (White, Cape Coloured and Bantu) living in Cape Town were studied.

The Outpatient Group

In this group, 149 males were studied. There were 117 controls and 32 subjects with ischaemic heart disease. Apart from the subjects with heart disease, none of the men studied were outpatients in the accepted sense of the word; they were all healthy and not under the surveillance of a doctor. They will, however, for convenience, be referred to as part of the outpatient group. The patients with ischaemic heart disease all had had a myocardial infarct many months or years previously, and about half of them were being given anti-coagulant therapy (phenindione). The remainder were not having such therapy, nor had they received any anti-coagulant therapy within 6 months of the test being performed.

All the outpatient candidates were interviewed and a full clinical examination was performed. This included an examination of the pulse; blood-pressure readings; auscultation of the heart; and measurement of the height and weight, and the circumference of the right arm. The skinfold thickness was

* Extract from Thesis 'The Fat-Tolerance Test: An Inter-racial Survey of the Effects of a High-fat Meal' for the M.D. degree, University of Cape Town, 1960.

assessed at 2 sites—the mid-point of the right arm posteriorly over the triceps, and posteriorly below the angle of the scapula. The caliper was standardized to record 0 - 250 kg., and the mean of readings for each site was recorded. An electrocardiogram was obtained on each candidate.

A dietary survey, with particular attention to the intake of fat, was also undertaken. At the same time, certain relevant sociological information was obtained, such as a family history of ischaemic heart disease; income; smoking habits; amount of exercise; consumption of alcohol; and, in the case of the Bantu subjects, the duration of residence in an urban area.

The Inpatient Group

Patients with any form of gastro-intestinal pathology were not considered for the test; this included peptic ulceration. No patient with cardiac, renal, hepatic or hypertensive disease was included. Patients with chest disease formed the majority of the subjects with medical illnesses, while the remainder was made up of patients recovering from herniorrhaphies, haemorrhoidectomies and a variety of minor orthopaedic procedures. All were tested on the day before being discharged from hospital. Of the 70 inpatients studied, 44 formed the control group.

All the 26 test cases had had recent (within 1 month of the test) myocardial infarction. All were on phenindione (dindene) therapy. Heparin had not been given.

The candidates all underwent a full clinical and electrocardiographic examination. A survey similar to that undertaken on the outpatient group was not attempted, but particular attention was given to (a) whether or not the candidate had undergone an operation, and (b) whether or not the candidate was receiving antibiotic therapy.

TECHNIQUE OF THE TEST

The test meal and the method of performing the butterfat-tolerance test have been recorded previously.^{1,2} 70 G. of

butterfat were fed as a test breakfast and 5 samples of venous blood were tested—fasting, and 2, 4, 6 and 7½ hours after the test meal. The subjects were fasting during the period of the test, but those who wished to smoke were permitted to do so. The fasting serum-cholesterol levels of all the patients were recorded, using the technique of Abell *et al.*³

The degree of lipaemia (in turbidimetric units) was plotted against time on a graph and a curve obtained. The area under this curve was then calculated by the method of counting squares, the result being expressed as the total area (in sq. mm.) for each curve. This gave some indication of the quantity of fat circulating during the post-prandial period.^{4,5} When analysing the tolerance curves, the mean total area of the curves was first compared. If significant differences were found between the various groups being analysed, a statistical analysis of the individual points on the fat-tolerance curve was made.

RESULTS

In a previous communication² it was reported that (a) patients with ischaemic heart disease have a greater and more prolonged lipaemia following the ingestion of a standard fat meal than do apparently normal controls, (b) no differences are noted between the 3 racial groups residing in Cape Town, and (c) the age of a candidate does not influence the lipaemic response to the test meal. Because no inter-racial differences were demonstrated, certain variables have been analysed irrespective of race (Figs. 1 and 2). The previous diet (with special reference to the fat content), income, smoking habits, family incidence of ischaemic heart disease, height, weight, skinfold thickness, and fasting serum-cholesterol levels, do not influence the duration or degree of the alimentary lipaemia following the test meal.

The Effect of Anticoagulant Therapy

The effect of phenindione therapy on post-prandial lipaemia was studied in those outpatients with ischaemic heart disease. There were 18 patients not on anticoagulant therapy, while

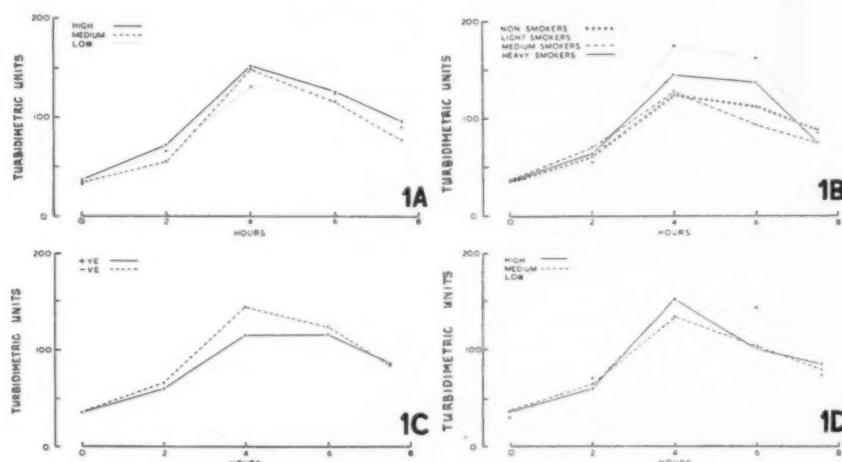


Fig. 1. Effect of certain variables on the fat-tolerance test. (A) income, (B) smoking, (C) family history of ischaemic heart disease, and (D) previous fat consumption in diet, expressed as a percentage of the total caloric intake (in outpatients). None of these influenced the fat-tolerance test.

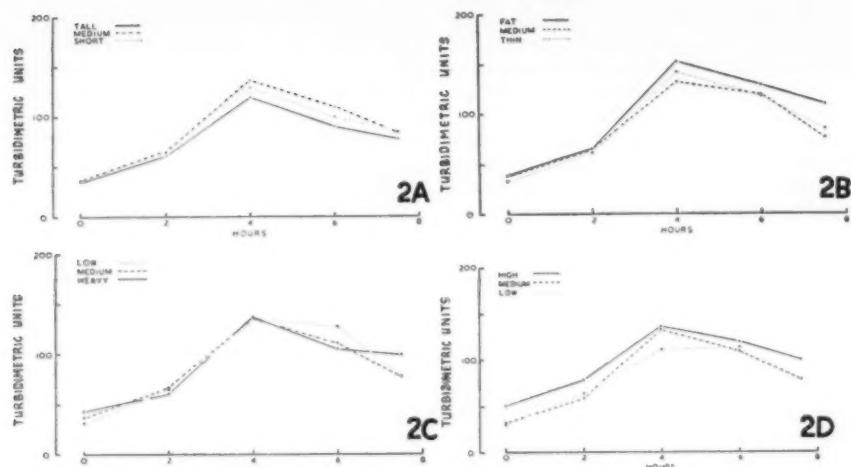


Fig. 2. Effect of certain variables on the fat-tolerance test. (A) height (in outpatients), (B) skinfold thickness, (C) weight, and (D) serum-cholesterol levels (in outpatients). None of these influenced the fat-tolerance test.

14 were receiving dindevan tablets. The analysis of the fat-tolerance curves obtained from these patients is summarized in Fig. 3. There is a significant difference between the mean total areas of the 2 groups, patients on phenindione therapy having a lessened lipaemic response. Statistical analysis of

the 4-, 6-, and 7½-hour levels of the curve did not show a significant difference, although there was an indication of some difference. It would be of interest to repeat this comparison with an increased sample size.

Effect of Antibiotic Therapy

Twenty-six of the inpatient control candidates were receiving antibiotic therapy at the time the fat-tolerance test was performed. With the exception of 3 subjects who were on oral broad-spectrum antibiotic therapy, the only antibiotics used were penicillin and streptomycin administered by intramuscular injection. There was no reason to believe that, at the time of the test, those subjects on antibiotic therapy were less well than those candidates not on this therapy. No antibiotics were administered during the duration of the fat-tolerance test.

The candidates on antibiotic therapy demonstrated a striking and highly significant diminution in the plasma lactescence following the test meal (Fig. 4). Further analysis of the group on antibiotic therapy showed that most of them had undergone a previous operation. There was good reason to believe that the event of an operation (of the type permitted in these tests) did not influence the fat-tolerance test (Fig. 5). In any event, even if the postoperative subjects were excluded, the difference between those on, and those not on, antibiotic therapy was still significant.

DISCUSSION

Despite wide differences in economy, food habits, dietary intake of fat and serum-cholesterol levels between the White, Cape Coloured and Bantu communities of Cape Town,⁶⁻⁸ a similar lipaemic response to the test meal of fat has been found in those members of the 3 racial groups tested in this survey. It is therefore not surprising that serum-cholesterol levels, dietary intake of fat, income, and body habitus do not influence the fat-tolerance test. It follows, too, that the serum-cholesterol level and the fat-tolerance test cannot be equated. Although both are altered in the presence of ischaemic

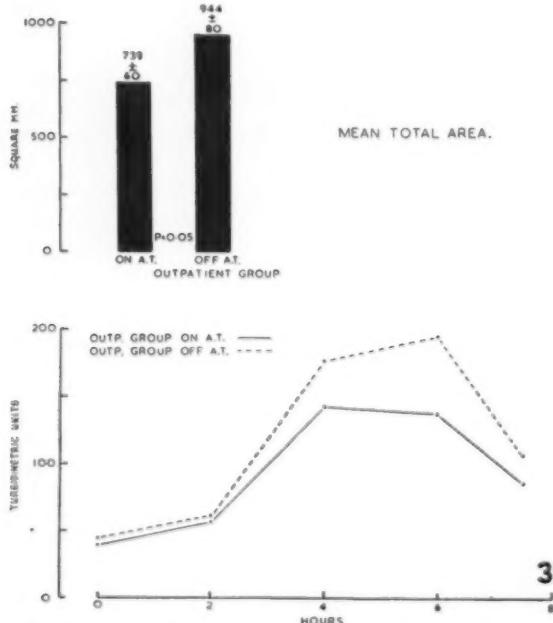


Fig. 3. Effect of anticoagulant therapy on the fat-tolerance test. Phenindione had some effect in reducing the post-prandial lipaemic response in patients with ischaemic heart disease. (A.T.=anticoagulant therapy.)

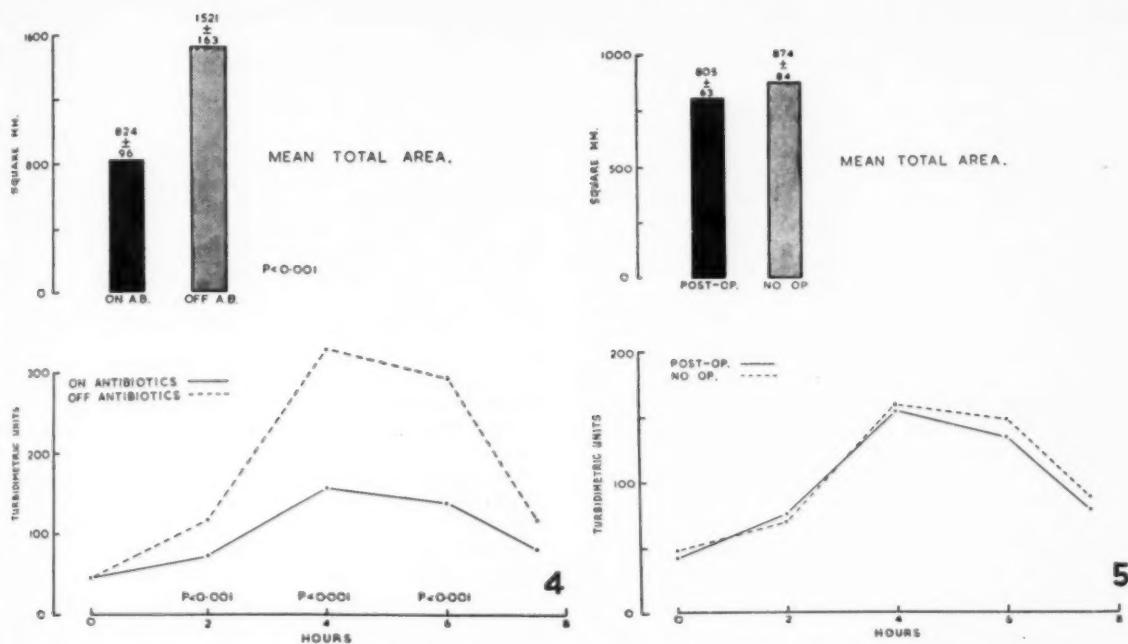


Fig. 4. Effect of antibiotic therapy (penicillin and streptomycin) on the fat-tolerance test (in inpatient controls). The antibiotics caused a significant reduction in alimentary lipaemia. (A.B.=antibiotics)

Fig. 5. Effect of an operation on the fat-tolerance test (in inpatients on antibiotics). The fact of an operation did not influence the fat-tolerance test.

heart disease, they do not appear to measure similar metabolic events.

Effect of Anticoagulants

There is no reason to believe that those candidates receiving phenindione therapy differed in any respect, other than the fact of the anticoagulant therapy, from the group not receiving this drug. Those patients not having anticoagulant therapy were not obviously taking more fat in their diet, having more or less exercise, or taking any other form of therapy. Those patients receiving anticoagulant therapy had not had a more severe myocardial infarct than the 'non-anticoagulant' group. There is at present controversy in the literature over the effectiveness of phenindione in reducing alimentary lipaemia. Horita and Loomis⁹ stated positively that phenindione had no anti-lipaemic action. Osborne¹⁰ treated a patient suffering from fat embolism with 'dindevan' and the patient recovered. He believed that the anticoagulant, in doses insufficient to lead to coagulation defects, had an antilipaemic effect. Unfortunately, little weight can be attached to the evidence from one case. In a study of the variables affecting the fat-tolerance test, Schwartz *et al.*¹¹ found that 3 patients on bishydroxycoumarin ('dicumarol') showed lower post-prandial turbidity levels than did 3 patients not on such therapy. At present, therefore, information regarding the effect of phenindione on alimentary lipaemia is scanty; but the results obtained from this survey indicated that the drug had some anti-lipaemic effect.

Effect of Antibiotics

No reports are available regarding the influence of antibiotics upon the fat-tolerance test. The suggestion was made by Mosonyi and others in 1951 that streptomycin had a lipaemic action.¹² The results of the present investigation certainly suggest just the reverse. Rokos *et al.*¹³ reported that chlortetracycline had an inhibitory effect upon pancreatic lipase. This in turn might result in a reduced chylomicronaemia. However, all but 3 of the subjects on antibiotic therapy were receiving parenteral penicillin and streptomycin.

While antibiotics might act in many ways—by increasing intestinal motility, by affecting the intestinal cell or its enzymes, by affecting the processes occurring in the blood, or by altering the bacterial flora of the gut—it is tempting to believe that the action on the bacterial flora is responsible for their effect on alimentary lipaemia. Goldsmith *et al.*¹⁴ reported significant lowering of the serum lipids when neomycin was administered orally. They suggested that this antibiotic produced changes in the intestinal flora, which in turn might have been responsible for the lowering of the serum lipids. An increase in the total faecal-fat excretion, free fatty acids, and soaps in patients on broad-spectrum antibiotic therapy has been reported by Faloon *et al.*¹⁵ Decreased plasma carotene and serum cholesterol occurred during neomycin therapy.¹⁶ From his studies on the effects of 'aureomycin' and chloramphenicol, Faloon believed that alterations in the bacterial flora of the intestine were not responsible for the steatorrhoea.^{17,18} Faloon therefore be-

lieved that the effect of neomycin, at least, was to cause an 'inflammation of the jejunal mucosa'. Unfortunately, studies of the faecal flora were not undertaken. Gabuzda *et al.*¹⁹ found no consistent quantitative or qualitative change in stool flora of patients receiving aureomycin, although these subjects manifested alterations in their nitrogen balance. However, this does not imply that similar results from stool culture will be obtained in antibiotic-induced steatorrhoea. It would seem that at present there is no certainty how antibiotics affect the absorptive functions (and particularly the absorption of fat) of the intestine.

Both penicillin and streptomycin, when administered parenterally, are able to pass freely into all the body fluids, and are found in the bile.²⁰ There is much evidence that parenteral antibiotics—including penicillin and streptomycin—can and do alter the flora of the gut. Fairlie and Kendall,²¹ Fowler,²² and Sanders and Kinnaird²³ have reported cases of staphylococcal enteritis following parenteral streptomycin and penicillin therapy. The value of penicillin therapy in the megaloblastic anaemias of Africans has been reported by Foy and Kondi.²⁴ It would appear that these antibiotics, administered parenterally, inhibit particularly the Gram-negative intestinal bacteria.²⁵ No faecal-fat studies or stool cultures were undertaken during the present investigation. Nevertheless, the possibility of the antibiotics having altered the bacterial flora of the gut, and thereby the absorption of fat, is one to be seriously considered. This is a field in which there is room for much work. Many questions remain unanswered, e.g. what effect would antibiotics have upon the alimentary lipaemia of patients with ischaemic heart disease; is there any difference in the bacterial flora of normal persons and those with ischaemic heart disease?

Effect of Surgery

It was hoped that, by testing the patients just before discharge, any effect of the operation itself would have passed off. The results of the investigation suggested that this aim had been achieved. There is some information pointing to a disturbance of fat metabolism in the immediate postoperative period at least. Goldenberg and Byrnes²⁶ fed a group of 39 patients, undergoing major extraperitoneal surgery, either radioactive triolein or oleic acid. None of the individuals tested had obvious gastro-intestinal disease. The fat was fed 24 hours pre-operatively and again 18 - 24 hours after the operation. Significant depression of the uptake of triolein in the postoperative period was found 4 and 6 hours after the dose had been administered. There were no differences in oleic-acid levels. These results suggested diminution of lipase production, rather than any depression of fat-absorbing mechanisms. The suggestion was made that the results reflected a depression in the volume of the gastro-intestinal secretions, including those from the pancreas. Another, less likely possibility, was a direct suppression of pancreatic activity. Recently, reports have appeared suggesting that a rise in fatty acids occurs in the immediate postoperative period. The secretion of a lipid-mobilizing hormone (LM) has been postulated. It is said to be released from the posterior pituitary during surgical stress, causing mobilization of the fat from the omentum.^{27,28} Support for this concept came from Rudman *et al.*,²⁹ working with rabbits.

Because of the time interval between the operation and the performance of the fat-tolerance test, the present investigation neither confirmed nor refuted the reports quoted above.

SUMMARY

Oral butterfat-tolerance tests were performed upon 219 males—70 inpatients and 149 subjects who were working and were not patients in the hospital. Members of the 3 racial groups in Cape Town (White, Cape Coloured and Bantu) were tested. Males with no evidence of ischaemic heart disease formed the control group, while those with clinical evidence of ischaemic heart disease formed the test group. All the inpatients were between 40 and 59 years of age, while the non-hospital (outpatient) group consisted of candidates between the ages of 20 and 59 years.

Differences in income, diet, smoking habits, family incidence of ischaemic heart disease, height, weight, skinfold thickness and serum-cholesterol levels, do not influence the test.

Those patients with ischaemic heart disease who are receiving phenindione (dindavan) therapy show less post-prandial lipaemia than those patients not on anticoagulant therapy.

The parenteral administration of penicillin and streptomycin results in a considerable reduction of the lipaemia following the ingestion of fat.

In the individuals tested, the event of an operation does not influence the fat-tolerance test.

This investigation was carried out as part of the programme of the Clinical Nutrition Unit of the Department of Medicine, University of Cape Town, which is under the direction of Prof. J. F. Brock and is supported by the South African Council for Scientific and Industrial Research. This investigation was also supported in part by a research grant H-3316 (CI) from the National Heart Institute, Public Health Service, USA.

I wish to record my appreciation of the generous assistance given by Dr. B. Bronte-Stewart during all stages of this survey. I should also like to thank the members of the Ischaemic Heart Disease Research Laboratory of the University of Cape Town who assisted with the survey of the outpatients and Mrs. M. Perrin who was responsible for obtaining the dietary histories.

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SOUTH AFRICAN ORTHOPAEDIC ASSOCIATION (M.A.S.A.)

REPORT OF CONGRESS AND SUMMARIES OF SCIENTIFIC PAPERS *

The Annual Congress of the South African Orthopaedic Association was held at Cape Town from 13 to 15 October 1960, under the Chairmanship of the President, Mr. R. C. J. Hill. The meeting was preceded by a full day's instructional course at the Karl Bremer Hospital, organized under the aegis of the College of Physicians, Surgeons and Gynaecologists of South Africa. This course was the first of its kind to be organized in South Africa.

The distinguished guests from overseas were Dr. Leo Mayer (New York); Mr. F. W. Holdsworth (Sheffield), President-elect British Orthopaedic Association; Mr. R. G. Pulvertaft (Derby), Cripple Care Lecturer for 1960; Dr. Beckett Howorth (Connecticut); Dr. Paul S. Harmon (San Francisco); and Mr. E. C. Nicoll (Mansfield).

At the end of the meeting Dr. Leo Mayer and Mr. R. G. Pulvertaft were elected members of the South African Orthopaedic Association.

INSTRUCTIONAL COURSE

ANGLE OSTEOTOMIES OF THE FEMUR

Mr. J. C. Steytler (Cape Town) said that the aim of the operation was to stabilize a painful and unstable hip. In his series of 20 patients, 12 operations were performed for quiescent tuberculosis of the hip joint. He illustrated the technique by means of a film. He used a 35°, 6-hole plate for internal fixation and emphasized that the operation was simplified if the osteotomy was preceded by fixation of the upper half of the plate. The follow-up period varied from 6 months to 5½ years with an average of 32.2 months. Of the 14 patients analysed, 13 achieved pain-free hips.

Mr. H. Bell (Cape Town), in the discussion, emphasized that the osteotomy angle should not be greater than 35°.

GRICE SUB-TALAR EXTRA-ARTICULAR ARTHRODESIS

Mr. G. Dall (Cape Town) described the pathological anatomy of the 'valgus foot'. In a series of 28 patients on whom he had performed the operation, the indications had been widened to include 6 patients with spastic flat foot and 4 patients with congenital vertical talus. He re-emphasized the importance of the correct alignment of the os calcis under the talus before inserting the tibial bone blocks. In not one of the patients was there absorption of the bone blocks or a failure of fusion.

In the discussion, Mr. N. M. Thompson (Pietermaritzburg) asked what was the lowest age at which the operation should be performed. Mr. Dall replied that it should not be done under 4 years of age.

RECURRENT DISLOCATION OF THE PATELLA

Mr. A. W. B. Heywood (Cape Town) reviewed 103 patients on whom operations for recurrent dislocation of the patella had been performed in the Liverpool and Oswestry areas. In 53 instances the tibial tubercle-transplantation operation had been performed. The results, in general, were found to be good, with a tendency to late deterioration when done in young adults. Four out of 13 children on whom this operation had been performed developed genu recurvatum. Twenty-nine patellectomies were performed and the results were mainly fair, providing a sound alternative when tibial tubercle transplantation was contraindicated in older patients and in those whose knees had degenerative changes. After patellectomy, recurrent dislocation of the 'patella substitute' was prevented by either plastic re-routing or tibial tubercle transplantation at the time of the operation. (This paper will be published in full in a later number of the *Journal of Bone and Joint Surgery*.)

In the discussion, Mr. C. Craig (Johannesburg) observed that very few adults with recurrent dislocation of the patella were encountered.

* Papers presented at the Annual Congress of the South African Orthopaedic Association (M.A.S.A.), Cape Town, 13-15 October 1960.

PARALYTIC DISLOCATION AND SUBLUXATION OF THE HIP

Mr. B. S. Jones (Cape Town) discussed the various mechanisms whereby this condition occurred in patients affected by anterior poliomyelitis. Like Blundell-Jones, he found dislocation or subluxation only where the disease had occurred when the patient was under two years of age. In Blundell-Jones' group of patients the increase of the neck-shaft angle was attributed mostly to the pull of the abductor-adductor muscles. Mr. Jones in his series found that the commonest causes of luxation were: rotator imbalance with a vertical pelvis; lack of weight-bearing preventing the play of normal forces on the head, neck and acetabular roof of the femur; and pelvic obliquity.

He maintained that the development of a valgus neck and excessive anteversion could be prevented by early weight-bearing, and the use of a pelvic band to prevent external rotation of the affected lower limb and to encourage weight-bearing with the affected limb in slight abduction. In the established case reduction was achieved by abduction and internal rotation, and maintained by a varus-rotation osteotomy using plate-fixation and calculating the angles required on a clinical basis.

ARTERIAL SUTURE TECHNIQUE

Mr. C. Barnard (Cape Town) traced the history of vessel repair from the time of Vesalius. The essence of the technique was precision; using waxed silk a continuous running suture was employed with the needle inserted at right angles to the vessel wall so that the opening was minimal. Great care had to be taken to ensure that the suture line was 'water-tight' and that it did not unduly constrict the lumen, and the suturing had to be preceded by the evacuation of clots and checking the efficiency of the collaterals. The paper was illustrated by a short film.

VARIOUS IMPROVED METHODS OF TREATMENT AND SPLINTAGE FOR THE INJURED PATIENT

Mr. P. Michau (Johannesburg), illustrating his paper with slides, showed, *inter alia*, how to apply a knee back slab that 'stayed put', a practical and comfortable consulting-room cervical collar, a washable mallet-finger splint and a simple pulley for leg and neck traction.

METHOD OF STRETCHING TENDO ACHILLIS WITH PLASTER OF PARIS

Mr. J. J. Commerell (Cape Town) showed a film which was based on the thesis that certain types of everted heels in children were caused by a 'tight' gastrocnemius or soleus muscle. In mild cases of gastrocnemius tightness active exercises were sufficient to correct the deformity. In the more severe degrees of the condition, plaster of Paris correction, combined with moulding, was required. The procedure was employed at fortnightly intervals and as a rule the condition was fully corrected at the end of 6 weeks. Where the soleus was responsible, a soleus-slide operation was performed.

STRAPPING TECHNIQUE FOR CLUB FEET

Sister Gregg (Cape Town) demonstrated her technique of strapping to maintain the corrected position in congenital club foot.

RECENT ADVANCES IN METABOLIC BONE DISEASE

Dr. W. P. U. Jackson (Cape Town) discussed a number of metabolic bone diseases.

Generalized Osteoporosis

He stated that the aetiology of this disease was still uncertain. Recently it had been suggested that the condition was a state of calcium depletion rather than that of protein. The severe but uncommon 'idiopathic' osteoporosis of young people remained a complete enigma and the treatment was most unsatisfactory. The symptoms of the common variety of osteoporosis in older people were frequently relieved, and further deterioration prevented, by the use of sex hormones and anabolic steroids.

Rickets

This had been found to be very common among Coloured children in the Cape Province. The main factor was lack of exposure to sunlight. In the 'resistant rickets' group osteotomy was of no value unless the rachitic process had first been brought under control.

Hyperparathyroidism with Osteitis Fibrosa

In the diagnosis of this condition, Dr. Jackson emphasized important radiographic features such as cortical erosions of the phalanges, 'cotton-wool' skull, and loss of lamina dura of the teeth. Secondary hyperparathyroidism might occur in any variety of long-standing osteomalacia or renal failure.

Page's Disease

Experimental work was being done using large doses of adrenal corticoids in certain severe cases.

Fluorosis and 'Kenhardt' Disease

In the Kenhardt district of the Cape Province a strange disease occurred in a Coloured community. The fluorine content of the water was high and classical fluorosis was seen in the adults. However, in addition to this, the children of the district developed pain and bowing of the legs with early bony rarefaction. This was not rickets and appeared to be related to fluorosis in some unknown manner.

ANNUAL CONGRESS

The Congress was held at the Broadway Theatre, Cape Town, for the first 2 days and for the third day the rendezvous was the new wing of the Princess Alice Orthopaedic Home.

THE FUNCTIONAL ANATOMY OF THE PELVIC JOINTS

Mr. G. F. Dommissie (Pretoria) showed that the symphyseal ligaments in the adult male had a breaking strength in excess of 520 lb. Using mathematical calculations he found that the symphysis was subjected to tension rather than compression and that this tension amounted to a force of 600 lb. with each stride of the athlete at full speed on the flat.

Symphyseal separation in the pregnant female normally averaged about 1 cm. This was controlled by an oestrogenic hormone and was reversed during the puerperium by an unidentified hormone. This process of reversal might be delayed, defective or inhibited, resulting in symphyseal instability, together with instability at the sacro-iliac joint (or joints).

Postpartum symphyseal separation was recognized as a well-defined clinical syndrome. Radiographically it might be identified by special views of the symphysis pubis. Radiographs of the sacro-iliac joints were unlikely to be of value except in extreme cases.

A similar syndrome had been found to follow miscarriages, operations for hysterectomy, or ovariectomy and the menopause. Women after the menopause, on occasion, were found to display concomitant osteoporosis.

Mr. Dommissie stated that there was almost universal degeneration at the sacro-iliac joints after the third decade. His own experiments with macerated pelvises indicated that radiographic changes at the sacro-iliac joints were difficult, if not impossible, to detect, while changes at the symphysis could be detected whenever present.

The lumbosacral trunk (L4 and L5 roots) was closely related anatomically to the sacro-iliac joint, and might be partly or completely severed in fractures involving this region, or irritated by lesions of a less dramatic, but more insidious, nature, such as infections, osteoarthritis or postpartum instability of the pelvis. In this manner an extra-disogenic type of 'sciatica' might arise. An operation for the exposure of the lumbosacral trunk and the relief of pressure or irritation had been evolved and performed by Dr. Henkel (Pretoria) and Mr. Dommissie.

STUDIES ON DIAGNOSTIC LOCALIZATIONS IN LUMBAR-DISC DISEASE

Dr. Paul S. Harmon (San Francisco) emphasized that clinical assessment was of prime importance. He used routine radiography, including flexion and extension films, and showed that pantopaque myelograms might be misinterpreted and that negative or equivocal results in the presence of definite disc pathology were not infrequent. He had injected physiological saline under

visual control directly into the lumbar discs during the performance of the anterior operation in 300 patients. If more than 1 ml. could be injected, this was of pathological significance. In his opinion the saline-injection test was the most sensitive and reliable method of detecting degenerated discs in the lumbar area. He came to this conclusion after comparing the saline series with pantopaque myelography in 150 of the same patients.

INTERVERTEBRAL DISC EXCISION AND LUMBAR SPINE FUSION BY A TRANSPERITONEAL ABDOMINAL APPROACH—REPORT ON 80 CASES

Mr. S. Sacks (Johannesburg) stated that the main indication for this procedure was prolonged backache, with or without pain in the legs caused by old-standing disc degeneration, coupled with the lack of response to conservative treatment. Other indications were: mechanical instabilities of the lumbosacral joint such as spondylolysis and spondylolisthesis; acute prolapsed discs; Pott's disease of the lumbar spine; failed fusions previously performed by the posterior approach; and patients suffering from backache after fracture-dislocations of the lumbar spine.

The operation was described in detail and Mr. Sacks mentioned the complications, including one case of impotence. These 80 patients were all operated on during the past 2 years and he was satisfied with the results thus far. The results were assessed clinically, and on this basis 88% of the patients were asymptomatic or clinically improved. Follow-up was of less than 6 months' duration in 40 patients.

In the discussion Prof. C. E. L. Allen (Cape Town) mentioned that in this approach the posterior structures responsible for the symptoms and signs were not visualized. Mr. Hamilton Bell (Cape Town) expressed surprise at the number of patients operated on in such a short period. Dr. Paul S. Harmon (San Francisco) stated that he had performed this operation on 450 patients and had first found that the transperitoneal route was easier, but had later employed the retroperitoneal approach.

FRACTURES OF THE SPINE AND THEIR TREATMENT

Mr. F. W. Holdsworth (Sheffield) illustrated his classification of spinal fractures into stable and unstable varieties with numerous slides. The treatment of the stable varieties was little or nothing beyond bed-rest until the acute pain subsided. The unstable varieties included fracture-dislocation—'slice' fracture with overriding of posterior facet(s). This variety was associated with extensive posterior soft-tissue damage. The spine required operative stabilization in this variety of fracture.

Mr. Hamilton Bell (Cape Town) asked what the degree of recovery was after plating for unstable spinal fractures associated with paraplegia. Mr. Holdsworth replied that the plate-fixation was intended to render the nursing of these patients easier. Mr. G. du Toit (Johannesburg) wondered whether the bodies in wedge-fractures (stable type) re-collapsed after reduction and immobilization for 3 months in hyperextension plasters. Mr. Holdsworth stated that a satisfactory plaster in excessive hyperextension could not be applied. The results of hyperextension plasters were worse than if the patients were left untreated. Mr. G. Bickerton (Durban) asked for how long patients with stable fractures were kept in bed and whether they were given physiotherapy. Mr. Holdsworth replied that these patients were allowed to get up when they felt like it—usually about 3 weeks after injury; very little physiotherapy was given.

ORIGIN OF CONGENITAL ANOMALIES AND THE CONTROL OF FORM

Mr. T. L. Sarkin (Cape Town) presented experimental and clinical evidence to show that the present theories of bone growth, as originally set out by John Hunter, were only partially correct. Using a series of ingenious models and slides, he explained his views on why the maximum growth in the length of the lower limbs was from the distal end of the femur and the proximal end of the tibia, while the maximum growth in length of the upper limb was from the proximal end of the humerus and the distal end of the radius and ulna.

On the basis of his theory of helical growth he proposed new explanations for various growth anomalies.

AN EXPERIMENT IN REHABILITATION

Dr. I. Guthrie (Somerset West) described the establishment of a rehabilitation centre for injured and ill workmen at the Somerset

West factory. This centre in South Africa has a history of repetitive difficulties and the centre and

THE EXPERIMENT

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RECALL

Mr. T. B. view concerning the shoulder... extent of the... ability of... factors which... method of... part of the... the extension... increase the... shoulder... rate of 40%... thesis by... were 13 recu...

West factory of African Explosives and Chemical Industries Ltd. This centre was the first started by a private industrial concern in South Africa. The initial inspiration was provided by the Vauxhall Rehabilitation Film. Unlike the Vauxhall Motor Works, there was a comparatively small number of employees and a lack of repetitive production jobs at the factory. He had the same difficulties to face concerning the attitude of the management and the trade unions. Using slides and a short film, he described the centre and illustrated the type of work performed.

THE EXPERIMENTAL USE OF A MUSCLE GRAFT IN THE REGENERATION OF A PERIPHERAL NERVE

Prof. J. Kirsten (Stellenbosch) briefly discussed the standard methods used to approximate severed nerve ends with minimal tension. Where the gap was too large to bridge successfully by these manoeuvres, an autogenous cable graft could be used. There were certain disadvantages associated with nerve grafting and much experimental work had been done to find a substitute for the nerve graft. He mentioned the Medical Research Council report of 1954 in which there were descriptions of experiments with blood vessels, synovial sheaths, plastic tubes and allantoic membrane, in an endeavour to construct a suitable tunnel along which to guide the regenerating axons into the distal Schwann sheaths. Homografts, heterografts and predegenerated grafts had also been tried. All the experiments had been without success or less successful than the standard method of autograft.

In his Hunterian Lecture in 1955 on the functional importance of the blood supply of peripheral nerves, Prof. G. Causey described his observations that nerve axons regenerate through a segment of muscle interposed between 2 cut nerve ends. It would be highly advantageous if satisfactory regeneration of a nerve occurred through such a muscle graft, since much muscle was available for use as grafting material. Professor Causey had performed a number of experiments in this direction and subsequently introduced Professor Kirsten to this subject. Although the work was still in progress he wanted to mention some of the results obtained so far. He used the nerve to the medial head of the gastrocnemius in the rabbit. After the nerve had been isolated, a segment of almost 1-2 cm. was removed. A piece of muscle 1 cm. thick was excised from the biceps femoris and the proximal and distal ends of the severed nerve were buried in the muscle graft. On one side a completely avascular muscle graft was used and on the opposite the graft retained an intact artery, viz. a small constant branch of the popliteal artery which enters the biceps femoris.

The nerve and the muscle graft were isolated at varying intervals from 10 to 40 weeks after the operation and the nerve was stimulated with electrodes, both proximal and distal to the graft. The isolation of the nerve was sometimes very difficult and often impossible, but when it could be done there was good contraction of the gastrocnemius, as well as the graft on stimulation of the nerve proximal to the graft, and good contraction of the gastrocnemius on stimulation of the nerve distal to the graft. Sections of the nerve proximal and distal to the graft were then removed and fixed in osmic acid. The nerve sections were prepared according to a modified Weigert-Pal method and examined microscopically. Professor Kirsten used slides to show the fibre population in a number of proximal and distal nerve segments in various avascular and vascular muscle grafts and at varying intervals. On the whole it appeared that the avascular graft was as effective as the vascular graft, or even more effective.

RECURRENT DISLOCATION OF THE SHOULDER JOINT

Mr. T. B. McMurray (Cape Town) stated that the present view concerning the question of recurrence was that the fate of the shoulder was settled at the time of the initial trauma. The extent of the tear in the capsule or labrum determined the possibility of recurrence. He contended that there were 2 additional factors which might increase the likelihood of recurrence. Kocher's method of reduction forced external rotation of the shoulder as part of the classical manoeuvre. This forced rotation could cause the extension of an initial trivial capsular or labral tear, and so increase the possibility of recurrence. Of 64 dislocations of the shoulder reduced by Kocher's method, 27 recurred—a recurrence rate of 40%. Of 112 dislocations reduced under general anaesthesia by simply lifting the head of the humerus into place, there were 13 recurrences—a recurrence rate of 12%.

The after-care of dislocations of the shoulder often took little account of the fact that there might be a tear in the anterior aspect of the capsule or labral attachment. Early exercises and physiotherapy were used in 70% of the cases of recurrence and it was possible that this early return to full function may have militated against the healing of the torn tissues on the anterior aspect of the joint.

Mr. McMurray briefly discussed the disadvantages of the Bankart and Putti-Platt operations. He went on to describe the preceding history of his own procedure, starting from Hybner's use of a tibial graft as an anterior bone block, and ending with the transplantation of the free tip of the coracoid process as carried out by Bristow. His procedure is a modification of Bristow's operation, in that he transplants the distal half inch of the coracoid process, with its 3 muscular attachments, through a transverse slit in the subscapularis muscle into the glenoid rim. He uses a single screw to fix it against the 'rawed-up' surface.

Of the 73 operations performed since 1948 there were only 2 recurrences. Both of these were caused by unusual and severe trauma.

THREE CASE HISTORIES ILLUSTRATING SOME OF THE HAZARDS IN ORTHOPAEDIC SURGERY

Dr. I. S. de Wet (Pretoria) discussed these 3 patients.

The first case history concerned a European male aged 39 years. Twenty-one years previously this patient had had a septic arthritis of the left hip joint. This resulted in pain and stiffness which forced him to seek advice. Five years ago a McMurray osteotomy had been performed (with minimal displacement). He had some relief and was able to continue farming until 1960 when pain, including nocturnal pain, forced him to seek advice once again. Clinically the hip had only 30° of flexion and special investigations, including radiography, revealed no signs of activity. A Charnley-type arthrodesis was performed; during the operation, when dense fibrous tissue was being separated from the edges of the acetabulum, the surgeon's finger penetrated the external iliac artery. After abdominal exposure a 7-inch woven teflon graft was used to reconstruct the artery. The entire procedure lasted 7½ hours and 11 pints of blood were given. The patient survived after a stormy convalescence. Four months later there was a bony ankylosis of the left hip joint and both anterior and posterior tibial arteries were still pulsating.

The second patient was a female, aged 42, who presented with intermittent pain and stiffness in her neck. Later she developed numbness of the whole of the right arm and weakness of the grip. On examination she had limitation of cervical and spinal movements in all directions, with wasting of intrinsic muscles, especially the thenar eminence. There was hypoesthesia of the whole of the right hand. Radiography showed narrowing of the disc spaces between C5 and C6 and between C6 and C7. After conservative treatment a manipulation under general anaesthesia was performed, producing some relief for 2 days. After myelographic and angiographic examinations, a neurosurgeon diagnosed syringomyelia. Five months later, after the patient had developed a spastic quadriplegia, she died. An autopsy revealed a meningioma about the size of a half-crown in the posterior fossa of the skull close to the foramen magnum.

As his third case history Mr. de Wet quoted the history of an 83-year-old lady who presented with an acute exacerbation of long-standing osteoarthritis of the left knee. The knee was aspirated and 1 ml. 'codelcortone' was injected with prompt relief of her pain. A week later she returned for an injection into the opposite knee because of pain. This was done, but 3 days later the patient developed a fulminating septic arthritis of the knee and died of a staphylococcal septicaemia 48 hours later.

SCALENOTOMY AND ITS PLACE IN THE CERVICO-BRACHIAL GROUP OF SYMPTOMS

Mr. L. Mirken (Port Elizabeth) reviewed 50 scalenotomy operations performed in the last 10 years. He considered the most important positive sign in the diagnosis to be tenderness over the insertion of the scalenus anterior and the reproduction of symptoms by digital pressure over the insertion at the first rib. He performed a complete section of the scalenus anterior over the subclavian artery and stripped the artery at the level of the arch.

This paper will be published in full at a later date.

TREATMENT OF FLEXOR TENDON INJURIES IN THE HAND

Mr. Guy Pulvertaft (Derby) said that our concern today was to establish a plan of treatment which could be expected to offer results of a good general standard. He pointed out the difference in approach to the repair of a single tendon injury in an otherwise normal hand and the tendon division in a severely damaged hand. With a single injury, restoration to normal, or near normal, should be achieved in approximately 75% of cases, but with severe damage improvement might be slight, though any improvement was of value. The principles and techniques of repair in the different areas of the hand were discussed. Primary repair of flexor tendons, when wound conditions permitted, was advisable for profundus divisions distal to the sublimis insertion, flexor pollicis longus in the distal part of the thumb, divisions in the palm and at the wrist level.

Skin suture only and secondary repair by tendon grafting was recommended for tendon divisions between the distal palmar crease and the insertion of sublimis, and for divisions of flexor pollicis longus in the palm and at the base of the thumb.

The operation of tendon grafting to restore profundus in the presence of an uninjured sublimis was described and illustrated by a film. Grafts were shown to demonstrate the standard of result achieved in these cases, and also for grafts performed for sublimis and profundus divisions within the digital theca.

The advantages of using plantaris as a graft were mentioned. The bridge-graft technique for closing gaps between tendon ends in the palm and above the wrist was mentioned. The problems of injuries occurring in infancy and the time lag between injury and elective repair were discussed. Several examples were shown with satisfactory results even when the delay had been more than 10 years. The importance of testing the amplitude of movement of the original muscles was pointed out, and the advice was given that sublimis of another finger should be used if the original motor appeared to be ineffective.

In conclusion *Mr. Pulvertaft* said that the treatment of these injuries would always present a difficult technical problem and quoted the words of *Leo Mayer* (1938): 'Reconstruction of severed tendons constitutes one of the most delicate problems in surgery—a challenge to the ingenuity and dexterity of the operator'.

In the discussion *Dr. Leo Mayer (New York)* thanked *Mr. Pulvertaft* for his masterly presentation and excellent results. *Mr. J. J. Commerell (Cape Town)* asked whether early or later movement after tendon grafting was advisable for the average operator. *Mr. Pulvertaft* replied that late movement was safer and as satisfactory. *Mr. C. Moller (Johannesburg)* wanted to know the minimum number of pulleys considered advisable. *Mr. Pulvertaft* replied that one over the middle of the proximal phalanx was the minimum. *Mr. G. T. du Toit (Johannesburg)* asked whether *Mr. Pulvertaft* was in favour of postoperative cortisone administration. *Mr. Pulvertaft* replied that he was not in favour of this because of the danger of interference with healing. In reply to *Dr. Leo Mayer*, *Mr. Pulvertaft* stated that he sutured digital nerves at the time of primary treatment.

PELVIC OBLIQUITY IN POLIOMYELITIS, ITS RECOGNITION AND TREATMENT

Dr. Leo Mayer (New York) emphasized that he was dealing only with 2 types of fixed paralytic pelvic obliquity. In the first type there was a disturbance in the kinesiology of the iliac-femoral group of muscles. Paralysis of the adductor muscles caused a fixed abduction of the femur which, in time, could create a pelvic obliquity of 2-4 inches. He cut away the gluteal muscles and pyriformis attached to the tip of the greater trochanter. In addition he excised a portion of the hip-joint capsule to permit complete correction of the deformity. He then transposed a long strip of fascia lata dissected upwards from the distal half of the thigh to the inguinal ligament. The tension of the fascia had to be sufficient to maintain the limb in neutral position.

The second type of pelvic obliquity was caused by unilateral paralysis of the external and internal oblique muscles of the abdomen, almost always associated with paralysis of the quadratus lumborum.

This type of contracture could be corrected by Roger-Anderson push-pull apparatus. Sometimes operative division of tight bands of fascia or muscle was necessary before correction could be

secured. After the obliquity of the pelvis had been corrected, a transplantation of fascia lata was done, joining the 9th rib to the crest of the ilium on the paralysed side. *Dr. Mayer* concluded by pointing out that *Clarke of Britain* and *Axer of Israel* left the fascia lata attached to the tensor fascia muscle when transposing the fascia to the 9th rib, hoping in this way to achieve active correction. He reported that he used this method in his last 5 patients and achieved even better results than with the free fascial transfer.

MID-CARPAL INSTABILITY

Mr. A. J. Helfet (Cape Town) discussed the anatomy of the mid-carpal joint. He stated, *inter alia*, that at most one-third of flexion-extension and a lesser amount of abduction and adduction took place in the mid-carpus. The rest of the movement of the wrist took place in the radio-carpal joint. In disorders of the midcarpus the limitation of movement was always less than one-third of the normal range of flexion-extension, and a painless arc of these movements was always present, pain occurring at the extremes. Tenderness was felt in the anatomical snuff-box and on the dorsum of the wrist over the mid-carpal joint.

In the first stage of instability the signs and symptoms were present but the radiographic picture was normal. The treatment required for this was a simple manipulation under general anaesthesia. In the second stage, erosion of the articular cartilage in the mid-carpal joint had occurred and these changes might show on the radiograph. Mid-carpal arthrodesis was successful in relieving symptoms and restoring painless function. In the third stage, the same clinical disabilities were associated with an un-united fracture of the navicular. He suggested that the un-united fracture had similarities to a stress fracture and became a painless pseudo-arthrosis; the disabling symptoms were derived from the mid-carpal joint. Mid-carpal arthrodesis, in his opinion, was effective in restoring stability of the wrist and union of the fracture. He had performed 28 mid-carpal arthrodeses in 91 patients with mid-carpal instability. In the discussion *Mr. S. Sacks (Johannesburg)* pointed out that bilateral os centrale had been found to be a cause of painful wrists.

THE UNIVERSITY OF CAPE TOWN ARTIFICIAL LIMB

Prof. C. E. Lewer Allen (Cape Town) described and demonstrated the new limb and discussed its principles and the advantages at the hip, knee and ankle-joint levels. Only one limb was in full use so far. The limb had been fully described in a previous paper.* In the discussion *Mr. H. Bell (Cape Town)* asked how the weight of the new limb compared with that of the standard limb. Professor Allen replied that the weight of the new limb was just over 7 lb. (The standard limb weighs 7 lb.)

* Published in this Journal on 13 February 1960 (34, 125).

THE INFERNAL FIXATION OF FRACTURES—IS IT WORTHWHILE?

Mr. R. C. J. Hill (Durban). This paper will be published in full at a later date.

DOUBLE OBLIQUE TELESCOPING OSTEOTOMY

Mr. J. J. Commerell (Cape Town), by means of a film, showed his technique of correcting deformity using a double oblique telescoping osteotomy.

THE FIBULA BYPASS OPERATION FOR NON-UNION OF THE TIBIA

Mr. H. Bell (Cape Town) first used this technique in children with defects in the tibia from osteomyelitis and sequestration, where the standard grafting techniques had failed. He was so impressed with the results in these patients that he extended the operation to any patient with a fracture of the tibia where there was loss of bone or skin or infection which would prevent grafting. He also used it in failed tibial-graft operations. He stated that in performing the operation it was important to perform the osteotomy just below the neck of the fibula. The obliquity was downwards and inwards so that a larger raw surface was opposite the tibia; it was also easier to insert the fibula into the tibia. The fibula was held in position with one screw. Where the non-union was firm and fibrous, an osteotomy of the fibula lower down was obligatory. *Mr. Bell* then showed slides of 8 patients in whom this operation had been performed.

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ANTERIOR CERVICAL SPINAL FUSION

Dr. Paul S. Harmon (San Francisco) showed a film demonstrating his technique for anterior cervical spinal fusion.

CASE DEMONSTRATIONS

Mr. Alec Singer and Mr. Martin Singer (Cape Town) demonstrated and reviewed patients who had undergone various orthopaedic procedures.

Tibialis Posterior Tendon Transfer

Six patients who had had this operation were shown. They had congenital club feet, which had previously been treated by conventional methods and which had all relapsed. Before the operation they had been corrected by a modified Kite's technique. The longest follow-up in this group was 4 years and the shortest 1 year. These children belonged to a series of 36 on whom this operation had been performed. They also demonstrated 3 adults on whom the operation had been successfully performed for traumatic lateral-popliteal-nerve paralysis and discussed the results of this procedure in 8 patients where the operation had been performed after anterior poliomyelitis.

Perthes' Disease

Using slides Mr. Alec Singer and Mr. Martin Singer reviewed 16 patients with Perthes' disease with 24 hips involved. They found 4 unusual modes of presentation in this series in addition to the classical onset: (a) unilateral signs with bilateral radiographic changes; (b) unilateral limp, no signs, and bilateral radiographic changes; (c) pain in the left iliac fossa; and (d) intermittent limp and slight limitation of movement and no radiographic changes for 2 months.

They employed 4 different methods of treatment (non-operative) and found the end results were the same. Like Evans and Roberts they found that the nearer the age of 3 years the onset was, the better the prognosis. They maintained that the fate of the head of the femur was predetermined.

Rotation-varus Osteotomy

Two examples were shown. In one the operation had been performed after successful reduction (on a frame) of a unilateral congenital dislocation of the hip in a child untreated until the age of 4 years. One year after the operation the hip was still stable.

The other example Mr. Alec Singer and Mr. Martin Singer demonstrated was in a patient who had had paralytic dislocation of the hip (poliomyelitis). The interesting feature was that the plate was removed 1 year after the operation. Union was rapid and after 2 years the hip was still stable.

SUIDELIK-AFRIKAANSE HARTVERENIGING: TAK STELLENBOSCH

Op die vergadering van die groep gehou op Donderdag 18 Mei 1961 is die wetenskaplike verrigtings ingelui deur 'n besprekking oor atrium septumdefekte deur prof. A. J. Brink.

'n Reeks van 7 pasiënte wat atrium septumdefekte gehad het, is uitgesoek en voorgedra, elkeen om spesiale aandag te vestig op verskillende fasette van die diagnose by hierdie toestande. Daar is gewys daarop dat hierdie defekte ingedeel kan word in ostium sekundum en ostium primum en dat elkeen van hierdie groep verskillende anatomiese variasies het.

Die eerste pasiënt is gebruik om aan te toon dat die kliniese diagnose van ostium sekundum gewoonlik met vertroue gemaak kan word en dat dit berus op die geskiedenis van ingekorte oefningsvermoë wat in jong volwasse leeftyd sy verskyning mag maak, die teenwoordigheid van pulsasies oor die uitvloeibaan van die regterventrikel met 'n uitwerpings-tipe sistoliese geruis by die pulmonale area, en 'n wyd gesplete tweede pulmonale klank, wat gefiksieerd is van 'n normale variasie toon met asemhaling. Daarby mag 'n kort mid-diastoliese geruis hoorbaar wees links van die sternum in die 4e of 5e interkostale ruimte.

Die elektrokardiogram toon 'n gradering van vertraagde geleiding oor die regterventrikel (rSr- of rsR-beeld), en daar is rotasies met die klok, van die frontale-vlak vektor met 'n gemiddelde as van meer dan 60° na regs. Die röntgenfoto is redelik kenmerkend met uitbulting van die pulmonale konusgebied en pulmonale arterie, vergroot hilusvate en pletoriese longe. Daar is aktiewe pulsasies met deurliging in die hilusvate.

Moore's Two-stage Osteotomy Osteoclasis

They also showed two patients in whom Moore's two-stage osteotomy osteoclasis had been performed for gross valgus deformity of the tibia after rickets and trauma respectively.

They concluded their lecture-demonstration by showing 6 cases of severe injuries involving the ankle joint and os calcis and the results of the different methods of treatment employed.

REHABILITATIVE SURGERY IN CEREBRAL PALSY

Mr. T. L. Sarkin (Cape Town), in his preliminary communication on this subject, stated that it had been constantly observed that spasticity in this connection is restricted to certain muscles and is not generalized. He showed a patient in whom he had excised the sublimis tendons with marked improvement in the function of the hand.

A METHOD OF LOCALIZED FUSION OF THE WRIST JOINT

Mr. S. Schwartz (Cape Town) discussed the principles of a new method of localized fusion between the distal end of the radius and the navicular bones. This fusion had all the advantages of an arthrodesis of the wrist joint and none of the disadvantages. It preserved the inferior radio-ulnar joint and triangular fibrocartilage, so that pronation and supination were unimpaired. The intercarpal and carpo-metacarpal joints were not interfered with, so that movements were preserved at the joints.

The range at these joints was 20° and was of great significance to the skilled worker. The column of bone bridging the radio-navicular joint had been found to be adequate even in those doing strenuous physical work. The indications for the operation were: (a) flail wrist, and (b) wrist-joint injuries, especially un-united fracture of the navicular. He described the technique in detail—the use of a half-inch Forstner auger bit which created a cylindrical cavity, centred on the radio-navicular joint, was important. This cavity was bounded proximally by the radius and distally by the residual rim of the navicular and extended down to the capsule on the palmar aspect of the wrist. The adjacent intercarpal joints were left intact. The cavity thus formed was filled with autogenous cancellous bone. He had performed the operation on 16 patients and bony fusion had occurred after approximately 3 months in all of them.

AORTO-ILIAC OCCLUSIVE DISEASE

Prof. J. H. Louw (Cape Town) presented this paper which was prepared in conjunction with *Mr. W. M. Roberts (Cape Town)*. It has been published in full in this Journal (35, 346, 367, 385—29 April, 6 May and 13 May 1961).

Kardiale kateterisasie toon 'n atriumdefek deur middel van (1) 'n kater-gang deur die defek na die linkeratrium en pulmonale vena; (2) demonstrasie van 'n aftakkings in die gebied van atria van links na regs; en (3) bepaling van pulmonale drukke en pulmonale bloedvloei en weerstand.

Die diagnose is met oop operasie hier bevestig.

Ostium Sekundumdefekte

Die anatomiese variasies van ostium sekundum is verder geïllustreer en uitgebeeld met die ander pasiënte.

(a) 'n Superior vena cavadefek (sinus venosus defek) is gedemonstreer. Die pulmonale vena van die regterbokwab het anomaleus gedreineer in die superior vena cava. Dit was aangedui deur die gang van die kateter vanuit die superior vena cava na die pulmonale vena en ook deur demonstrasie van 'n plaaslike uitbulting in die gebied van dreining met tomografie en uitvapping as gevolg van vloei in die gebied van die anomaleuse dreining deur venografie. Tydens ophart-operasie is dit besluit om die vena te laat staan en sodoen stenose van die superior vena cava of anomaleuse vena te voorkom.

Die pasiënt het ook 'n frontale vlak-vektor gehad wat, soos seldsaam gebeur met atrium sekundumdefekte, teen die klok om geroteet het.

(b) 'n Pasiënt met atrium septale defek en pulmonale stenose is gedemonstreer. Hier was die uitwerpings-tipe sistoliese geruis baie te voorkom.

prominent en gepaard met 'n trilling en was daar 'n elektrokardiografiese beeld van regterventrikuläre hypertrofie (qR).

(c) Die bevindings van 'n atrium septumdefek in assosiasie met 'n ventrikuläre septale defek is ook gedemonstreer. Die pasiënt was reeds in hartversaking met 'n groot hart, beide linker- en regterventrikuläre vergroting, met 'n holo-sistoliese geruis, maksimaal links enregs van die sternum in die 3e en 4e interkostale ruimtes. Die tweede pulmonale klank was gesplete met 'n geaksenteerde tweede element.

Die elektrokardiogram het 'n onbesliste as en ook 'n onbesliste frontale vlak-vektor gehad.

Met kateterisasie was daar 'n pulmonale hypertensie amper gelyk aan sistemiese drukke, en is daar 'n dubbele aftakking van links na regs op sowel atriële as ventrikuläre hoogte gedemonstreer. Daar was ook 'n aftakking van regs na links. Die pasiënt het ook 'n voortbestaande linker superior vena cava gehad wat in die koronäre sinus gedreineer het.

Daar is verder verwys na die ander anatomiese variasies van ostium primum met 'n inferior vena cavadefek, en 'n groot fossa ovalisdefek met pseudo-anomaleuse pulmonale dreinering.

Ostium Primumdefekte

Die ander pasiënte het aspekte van ostium primum gedemonstreer.

(a) Die eerste pasiënt hier het al die gewone verskynsels gehad van 'n atrium septale defek, klinies en röntgenologies. Slegs die elektrokardiogram het die onderskeid gemaak. Hier was daar linkeras-deviasie en, soos altyd in dié pasiënte gedemonstreer kan word, 'n frontale vlak-vektor wat roteer het teen die klok en wat bokant die horisontale lyn geleë was.

Tydens operasie is daar 'n ostium primum gevind met 'n spleet in die mitraalkleppe.

(b) Een pasiënt het 'n dekstrokarde gehad, was in versaking, en het ook reuse V-golwe in die veneuse pulsasies in die nek getoon.

Die diagnose van atrium septumdefek is vermoed op grond van die gewone kliniese verskynsels, hoewel die hart regs geleë was. Die kateterisasie het dan ook bevestigende resultate gelewer.

Die elektrokardiogram was weens die dekstrokarde nie maklik om te interpreteer nie. Met die gewone standaard elektrokardiogram

het die frontale vlak-vektor teen die klok roteer! Met die spieelbeeld-elektrokardiogram egter het dit met die klok geroteer!

Tydens operasie is dit tog 'n ostium primum gewees met 'n spleet in die mitraalklep. Waarskynlik het die groot V-golf in die jugulare veneuse druk juus die mitraalinkompetensie aangedui!

(c) Die bevindings van 'n baba wat op die leeftyd van 10 maande dood is aan hartversaking, is ook gegee. Hierdie kind het 'n groot hart gehad, 'n holo-sistoliese geruis, en op röntgenfotos 'n vergrote hart met pulmonale arteries wat uitgeset was, en pleoriole long.

Die elektrokardiogram was een van linkeras-deviasie en rotasies van die frontale vlak-vektor teen die klok bo die horisontale lyn. By outopsie is daar 'n gemeenskaplike atrioventrikuläre kanaal defek gevind.

Verdere Orwegings

Voorts is daar klem gelê op die elektrokardiografiese bevindings om te onderskei tussen ostium primum- en ostium sekundumdefekte. Daar is gelet op die verskille in die kliniese beeld.

Die ontstaan van pulmonale hypertensie later in die leeftyd van pasiënte met atrium septumdefek is benadruk, hoewel 'n klein persentasie dit kongenitaal mag ontwikkel en dan voor 20-jarige leeftyd hypertensie mag hê.

Vir chirurgiese doeleindes is dit nodig om te onderskei tussen hiperdinamiese pulmonale hypertensie en weerstandspulmonale hypertensie.

Daar is verwys na die natuurlike verloop van atrium septale defek wat by die ostium sekundum type, na die swigelingsjare verby is, baie gunstig mag wees. Tog is daar nie meer as 25% van sulke pasiënte wat na 40-jarige leeftyd nie simptome het nie. Hiernaar is die chirurgiese behandeling van 'n ongekompliceerde geval nou waarskynlik minder as 1%, en chirurgie word dus aangeraai tensy (1) daar 'n onomkeerbare pulmonale hypertensie teenwoordig is, (2) 'n pasiënt na 40-jarige leeftyd sonder enige simptome voordoen, en (3) 'n jong pasiënt sonder enige simptome voordoen en sy pulmonale bloedvloei teen sy sistemiese vloeい nog minder as 2 teenoor 1 is.

Daar is gewys op die groter risiko by ostium primumdefekte, veral wanneer daar defekte is van die mitraal- en trikuspidale kleppe, of as daar 'n volledige kussingdefek teenwoordig is.

Die verskillende aspekte is toegelig deur skyfies en röntgenfotos van die pasiënte.

OFFICIAL ANNOUNCEMENT : IN DIE AANKONDIGING

SPECIAL MEETING OF FEDERAL COUNCIL

Notice is hereby given that a Special Meeting of the Federal Council will be held at Medical House, 5 Esselen Street, Johannesburg, on 7 and 8 July 1961, commencing at 10 a.m. The business of this Special Meeting will be to reconsider the policy of the Association in relation to Insurance Companies, Medical Aid Societies and the Medical Services Plan, and matters ancillary thereto, and, if thought fit, to rescind, amend or modify any prior resolution thereon, and to lay down the future policy of the Association in regard to these matters.

P.O. Box 643
Cape Town
20 June 1961

A. H. Tonkin
Secretary

SPECIALE VERGADERING VAN DIE FEDERALE RAAD

Kennis geskied hiermee dat 'n Speciale Vergadering van die Federale Raad te Mediese Huis, Esselenstraat 5, Johannesburg, op 7 en 8 Julie 1961 om 10 v.m. gehou sal word. Hierdie Speciale Vergadering is belê om die beleid van die Vereniging betreffende Versekeringsmaatskappy, Mediese Hulpverlenings, die Plan vir Mediese Dienste, en sake wat daarvan afhang, te hersien, en, na goeddunke, enige vorige besluit in hierdie verband te herroep, te wysig of te beperk, en om die toekomstige beleid van die Vereniging ten opsigte van dié sake neer te lê.

A. H. Tonkin
Sekretaris

PASSING EVENTS : IN DIE VERBYGAAN

South African Paediatric Association (M.A.S.A.), Cape Town Sub-Group. The next meeting of this Sub-group will be held jointly with the South African Society of Obstetricians and Gynaecologists, Cape Town Branch, in the Lecture Theatre, Red Cross War Memorial Children's Hospital, Rondebosch, on Tuesday 4 July 1961 at 8.15 p.m. Dr. Louis Resnick will speak on 'An obstetrician's view of perinatal mortality, with special reference to prematurity'. All those interested are invited to attend this meeting.

* * *

The Central African Medical Association is holding a Congress in the early part of May 1962 in Bulawayo, Southern Rhodesia. It is hoped that this Congress will be combined with a Congress of Radiologists from all parts of Africa, with guest lecturers from England or other countries. Further information may be obtained from the Matabeleland Branch of the British Medical Association, P.O. Box 77, Bulawayo.

Dr. Charles Berman, of Roodepoort, Transvaal, has been invited to the University of Perugia, Italy, to attend the Centenary Celebrations of the Chair of Morbid Pathology to be held on 24-30 June 1961; and to preside at a plenary session of the Cancer Conference in honour of Prof. Giorgio Dominici, Professor of Medicine at the University of Perugia Medical School, on the occasion of his 70th birthday.

* * *

Dr. B. C. Uys formerly of the King Edward VIII Hospital, Congella, Durban, has commenced practice as an obstetrician and gynaecologist at 705 Medical Arts Building, Jeppe Street, Johannesburg. Telephone: Rooms 22-9368.

Dr. B. C. Uys, voorheen van die King Edward VIII-hospitaal Congella, Durban, het begin praktiseer as verloskundige en vrouearts te Medical Arts-gebou 705, Jeppestraat, Johannesburg. Telefoon: 22-9368.

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Mr. Martin Singer, orthopaedic surgeon, has returned to Cape Town after a three month's visit to Scandinavia and the United Kingdom, where he attended several orthopaedic centres, including the Hand Unit at Gothenburg, Sweden.

Dr. Stuart J. Saunders, of Cape Town, has changed his home address to Flat 6, University House, Woolsack Road, Rosebank. Telephone 69-3336. His consulting rooms telephone number remains unchanged.

IN MEMORIAM

HARRY MORRIS WOLFSOHN, M.B., CH.B., D.P.H.

Dr. I. Awerbuck, of Kimberley writes:

It is with great regret that we have to record the death at Groote Schuur Hospital, on 10 April 1961, of Dr. Harry Morris Wolfsohn, medical officer of health for Kimberley for almost seventeen years.

Dr. Wolfsohn was born at Lakeside, Cape, just on 50 years ago. He obtained his M.B., Ch.B. degrees at the Cape Town Medical School in 1935, and then spent some years as a house

surgeon at the Kimberley Hospital and in doing various locums. In December 1937 he took the Diploma of Public Health and in 1939 returned to Kimberley, where he acted as district surgeon and then as assistant medical officer of health until his appointment, in September 1943, as chief medical officer of health, a position which he held up to the time of his death.

As medical officer of health his jurisdiction extended over the Municipal and Divisional Council areas, an area of about 3,000 square miles, and during his years of office he travelled over practically every part of this district.

Harry was a man of unbounded energy and exceptional ability, and whatever he undertook, he carried out with a thoroughness that earned him the admiration of all. He did not spare himself, nor, it is said, his staff, when he considered the work to be in the public interest. He interested himself in all aspects of public health and social welfare, making no distinction between race and colour. It was due to his efforts and watchfulness in the field of preventive medicine that the formidable infectious diseases of diphtheria, smallpox, typhoid, venereal disease, and more recently poliomyelitis, are so rarely encountered in Kimberley today. Perhaps his greatest work was in the organization of the fight against tuberculosis, which unfortunately in Kimberley, as in all other centres, is still rife. He threw all his amazing energy into the task and only those who are concerned with tuberculosis work are aware of all its ramifications and of the tremendous amount of labour and effort that it entails. In 1949 he became chairman of the Kimberley Anti-tuberculosis Association; and by applying his organizing ability and vast knowledge of tuberculosis affairs, and of laws and regulations governing its control (all of which

Dr. Wolfsohn

thereby maintaining circulation at a level sufficient to sustain life. The technique, which has been termed 'strikingly effective', may well revolutionize the concept of reviving hearts that have failed. In more than 100 cases of cardiac arrest treated by this method at the Johns Hopkins Hospital, 62% were successfully resuscitated to their previous cardiac and central-nervous-system status.

An animated sequence in the film illustrates how manual depression of the lower sternum compresses the heart, forcing blood

into the coronary arteries and thus reviving the heart. The film is a valuable educational tool for medical students and health workers, and it is hoped that it will be widely used in the teaching of resuscitation techniques.

PHARMACEUTICAL NEWS : FARMASEUTIESE NUUS

A NEW FILM FROM SKF

The subject of the film is 'External cardiac massage', a recently developed technique for restarting hearts which have stopped beating, without opening the chest.

Produced in cooperation with the developers of the technique, R. Jude, W. B. Kouwenhoven, and G. Guy Knickerbocker, all of the Johns Hopkins Medical Institutions, 'External cardiac massage' shows how the technique substitutes externally applied pressure for the rhythmic contractions of normal heart muscle,

The technique, which has been termed 'strikingly effective', may well revolutionize the concept of reviving hearts that have failed. In more than 100 cases of cardiac arrest treated by this method at the Johns Hopkins Hospital, 62% were successfully resuscitated to their previous cardiac and central-nervous-system status.

An animated sequence in the film illustrates how manual depression of the lower sternum compresses the heart, forcing blood

into the pulmonary and systemic vessels. Release of the pressure allows the chest to expand and the heart to fill again.

If external cardiac massage, combined with assisted ventilation, is begun within 4 minutes after cardiac arrest, the central nervous system will receive enough oxygen to prevent serious damage.

The film shows the steps to be taken to resuscitate patients when heart arrest or ventricular fibrillation occurs both within and outside the hospital. It also distinguishes between heart arrest and ven-

tricular fibrillation, illustrates the use of the external fibrillator as part of the resuscitation technique, and demonstrates the application of the technique to infants and children. No product references of any kind are made. The film is in colour and runs for 21 minutes.

Bookings may be arranged through local SKF representatives or by writing to P.O. Box 38, Isando, Transvaal. Whenever possible, four weeks prior notice should be given and an alternate showing date of at least one month after the preferred date.

NEW PREPARATIONS AND APPLIANCES : NUWE PREPARATE EN TOESTELLE

TWISTON

Westdene Products (Pty.) Ltd. announce the introduction of Twiston, the new 'tailor-made' antihistamine from the research laboratories of McNeil of America, and supply the following information:

Description: Twiston, a highly potent antihistamine, is the active isomer of racemic carboxamine. Twiston is twice as active as the parent substance, so that therapy requires only half the dose previously found effective. Since the required dosage is halved, side-effects—particularly drowsiness—are negligible or absent. Twiston has an extremely wide margin of safety between therapeutic dose and toxic dose. No abnormalities in blood counts

or urinalyses have been reported. No evidence of any toxicity has been reported.

The therapeutic response to Twiston lasts from 4 to 6 hours, permitting convenient scheduling of doses and making effective the use of a Twiston R-A (Repeat Action) tablet for administration at 8 to 12-hour intervals.

Presentation: Twiston (rotoxamine) McNeil is supplied in bottles of 30 or 100 2-mg. scored tablets. Twiston R-A (Repeat Action rotoxamine) is supplied in bottles of 20 or 100 4-mg. tablets.

Further information may be obtained from the sole South African distributors, Westdene Products (Pty.) Ltd., P.O. Box 7710, Johannesburg.

CORRESPONDENCE : BRIEWERUBRIEK

ABOLITION OF THE TARIFF OF FEES FOR APPROVED MEDICAL AID SOCIETIES

To the Editor: Paging through the *Journal* of 24 September 1960, I read again with interest the letter by 'Observer'. It is a very thoughtful exposition of the doubts which assail the practitioner at the present time and was obviously written by a man who has given this matter much thought. He suggests that we return to the former method which the older men amongst us remember so well—the days when we treated our patients as people and charged them according to their means and not as 'members' of some organization which paid their fees for them. Is he correct in suggesting this? Would such a step be retrograde?

'Observer' has given 11 good reasons why the Tariff of Fees for Approved Medical Aid Societies should be abolished, and some of these reasons contain sentiments which should make us stop and think. He mentions 'the undignified procedure of bargaining with medical aid societies over fees'; but I have heard it said that the negotiations are carried out in a spirit of friendliness. I suppose, however, that even though the negotiations are friendly the 'procedure of bargaining' is a little undignified.

The fifth reason given by 'Observer' is one which I admit shook me more this time than when I first read it. It reads:

'The temptation to which many practitioners succumb of over-visiting or charging for multiple procedures in the course of one operation because a patient belongs to a medical aid society. Membership of a society is often taken as sufficient cause to render an account larger than would have been rendered to a patient from the same income category.'

If this is the case, then I think it is high time we did away with a system that encourages this form of practice. I seem to have seen it stated somewhere, possibly in the Constitution of the Medical Association, that the primary function of the Association is to guard the honour and interests of the medical profession. Somehow I think the framers of the phrase 'honour and interests' had the moral and ethical interests of the profession at heart rather than their financial interests. Am I wrong in thinking this?

I must admit that I like 'Observer's' suggestion that 'the fact that persons may insure themselves against the cost of sickness should be no concern of the doctor'. Perhaps we started all this business of medical aid societies and other forms of insurance in the wrong way. On reflection it seems to me that all the organizations indulging in medical 'insurance' should have followed the old precept of telling their members never to admit they were insured, and to have made an arrangement to indemnify the patient to some 80% when they received from him an account already

recepted by the doctor. I believe they do something like this in Australia.

Would frank discussion of this whole subject at Branch meetings help us to reach some solution?

16 June 1961

Cogito ergo sum

THE MEDICAL SERVICES PLAN

Following is the text of a letter written by the Chairman of the Board of Directors of the Medical Services Plan to the Chairman of Federal Council, on 11 March 1961.

Dear Dr. Turton, At its meeting on 8 March 1961, the Board of Medical Services Plan considered a letter published by Dr. Raymond Theron in the issue of the *Journal* of 4 March 1961¹. The Board considers that this letter contains much that is erroneous and misleading and that it was designed to discredit the Plan on the eve of an Extraordinary General Meeting of the Association with the full knowledge that the date of its publication would preclude any timely refutation in the pages of the *Journal* prior to the date of the meeting. The Board has, however, decided to ignore this letter with the exception of the following statement which cannot be allowed to stand uncorrected since it involves the honour and integrity of the Chairman of our Board, of the Board itself, and of the Federal Council of your Association, viz:

'In 1955 the Medical Association sent a man to Canada to study their "Pre-payment" schemes. His trip and other services cost the Association over £2,000 and in the end there seems to have been nought for our comfort. In 1956 a Committee under the Chairmanship of Dr. M. Shapiro was appointed and empowered to go ahead with trying to work out and establish an insurance scheme to be run as a non-profit company. Dr. Shapiro is recorded as having promised that it would cost the Association not a penny. In fact they would regard the close on £3,000 already spent, as a debt of honour, to be repaid when the Plan was on its legs.'

This statement leaves the impression that the Plan owes the Medical Association the sum of close on £3,000 'as a debt of honour'. My Board wishes to repudiate emphatically any outstanding financial indebtedness to the Association, on either legal or moral grounds.

The relevant facts in chronological order are as follows:

1. Mr. Johns was appointed as Public Relations Officer to the Association, his duties to include, *inter alia*, service as Secretary of the Sub-committee on the Economics of Medical Practice. (See Federal Council Minute 25 of Federal Council Meeting, Pretoria, 13 - 15 October 1955.)

2. Federal on the Economic recommendation to insurance societies agreed that a period of obtaining (See Minutes)

3. At its meeting and the implementation of the

The Council shall be reported as funds available books of The Secretaries of what Committee on account of which would be agreed the

4. Subsequently the Chairman refused to be authorized to attend the Meeting of

5. At the on 4 October Committee action until of the Chairman

the Commi Council and protest. (Minutes)

6. It was Council should the Economic thought best

7. After Secretary of at the request recommended which would be co-course invited as Director name 'South he and Dr. capacity and Medical Ho amount of p to link it with financial co presented to the

8. The Exisisting of the Treasurer, Mr. Murray, with members, the Sub-committee investigating called to be possible to board sitting societies'. (Minutes 1957, p. 390)

9. At the 29 March 1961 considered. be situated on the work of

* A copy of Federal Council

2. Federal Council received a report from the Sub-committee on the Economics of Medical Practice which contained a recommendation that the practicability of inaugurating a medical aid or insurance scheme for South Africa be investigated. The Council agreed that an amount of up to £2,000 be set aside for the purpose of obtaining information from the United States and Canada. (See Minute 26 of the same meeting.)

3. At its meeting on 13 April 1956, the Federal Council empowered the Committee 'to take all necessary measures to formulate and implement a scheme to establish a Medical Aid Plan'.

The Council also empowered the Sub-committee to inaugurate the Fund and voted 'a sum of not more than £1,000 which sum shall be repayable to the Medical Association of South Africa as soon as funds became available'. (See Minute 107 of Federal Council Meeting of 12 April 1956.) This Minute also records that—

'Dr. Shapiro asked that before the Fund was incorporated as a company, the Head Office should give an assessment of the funds already expended, so that they could be brought into the books of the company as a debt at the time that it was launched. The Secretary stated that the Head Office could give an account of what had been spent towards the expenses of the Sub-committee on the Economics of Medical Practice, and from this account the Committee would have to decide which expenses would be a legitimate claim against the company. Dr. Shapiro agreed that this could be done.'

4. Subsequent to the Federal Council Meeting of April 1956, the Chairman of Council, Dr. Sichel, on his own responsibility refused to pay over to the Sub-committee the loan of £1,000 authorized by the Federal Council in terms of Minute 107 of the Meeting of 12 April 1956.

5. At the meeting of the Federal Council held in Cape Town on 4 October 1956, Dr. Shapiro reported on the activities of his Committee up to the point when it was decided to take no further action until the present meeting of Council following the refusal of the Chairman to allow an outright sum of £1,000 to be paid to the Committee. The action of the Chairman was upheld by the Council and all the members of the Sub-committee resigned in protest. (Minute 69.)

6. It was resolved that the Executive Committee of the Federal Council should receive all the reports of the Sub-committee on the Economics of Medical Practice and deal with the matter as they thought best. (Minute 98 of the same meeting.)

7. After the Federal Council Meeting in October 1956, the Secretary of the Association, Dr. Tonkin, prepared a Memorandum at the request of Dr. Sichel, then Chairman of Federal Council, recommending that Dr. Currie be invited to head a Committee which would include Dr. Dry and Dr. Zabow and that Mr. Zeederberg be co-opted to the Committee. This Committee should in due course invite top men in commerce or industry to join the Board as Directors of a non-profit company for which he suggested the name 'South African Medical Aid Society'. He also suggested that he and Dr. Marchand should assist the Committee in an advisory capacity and that the Society thus formed should have offices in Medical House, Cape Town, 'so as to give the Society a certain amount of prestige in the eyes of the public, who would be inclined to link it with the Association although it would have no direct financial connection'. This undated memorandum was never presented to or considered by the Federal Council.*

8. The Executive Committee appointed a sub-committee consisting of the President, the Chairman of Council, the Honorary Treasurer, Dr. A. Landau, Dr. J. A. Currie, and Mr. T. B. MacMurray, with Dr. A. A. Zabow and Dr. T. J. Dry as co-opted members, to examine the documents gathered by the former Sub-committee on the Economics of Medical Practice. This investigating Committee recommended 'that a conference be called between existing approved medical aid societies and representatives of the Association, to see whether or not it would be possible to amalgamate existing medical aid societies and have a board sitting of 50% doctors and 50% representatives of the aid societies'. (See Report of *ad hoc* Committee, *Journal* of 20 April 1957, p. 390.)

9. At the meeting of Federal Council held in Johannesburg on 29 March 1957, the report of the aforementioned Committee was considered. It was agreed that a new committee be established to be situated in Pretoria 'to consider comprehensively in the light of the work of the Committee on the Economics of Medical Practice

and the memorandum prepared by the *ad hoc* committee what further steps should be taken to initiate a medical insurance plan which could be supported by the Medical Association'. The Cape Town Investigating Committee was discharged.

10. The report of the new Sub-committee on the Economics of Medical Practice, of which Dr. J. H. Struthers was Chairman, was considered at the Federal Council Meeting held in Durban on 11 September 1957. (Minute 129.) The recommendation of the Committee 'that a comprehensive medical insurance plan, similar to that originally envisaged by the Shapiro committee, be proceeded with' was agreed to by the Federal Council. (See Minute 129.) This Minute also records:

'Considerable discussion took place as to the merits of the scheme, several questions being asked as to how it was to be financed.'

Eventually Dr. Sichel asked questions as to the part which the Association was expected to play in the launching of this scheme, and particularly asked whether the Association would be expected to become financially involved in it. Dr. M. Shapiro replied, 'My suggestion is, if the scheme is launched, it shall involve not one farthing's responsibility to the Association. I am quite satisfied that the scheme can be launched without any assistance from the Association, except one thing—its sponsorship. That is all it needs from the Association. The doctors who are to benefit incidentally from the scheme, if it is established, are the people who should take on the financial responsibility in the first instance'.

11. At the meeting of the Federal Council held in Johannesburg on 26 April 1958, it was resolved 'that the Sub-committee on the Economics of Medical Practice be discharged as a sub-committee of Federal Council and that the Southern Transvaal Branch of the Association be invited to watch the interests of the Association in the sponsorship of the scheme'. (Minute 122.) It is also recorded that 'Dr. Robertson asked a question of the Chair as to whether the Southern Transvaal Branch could accept financial responsibility or advance money for the organization of such a scheme. The Chairman replied that so far as the Branch might be supervising or sponsoring the scheme, it would be in order for the Branch to provide funds for other things relative to this scheme, although it could loan money for a period'.

12. An amount of £103 5s. 3d. was repaid to the Southern Transvaal Branch by Medical Services Plan on 5 March 1959 for expenditure involved in the inauguration of the Plan. All other inaugural expenses were met directly out of the £10 loans advanced by Participating Doctors in the Plan.

From the foregoing it is clear:

(a) That Mr. Johns was at all times a servant of the Association and that in that capacity the cost of his services, including his overseas trip, was undertaken and met by the Medical Association.

(b) That in respect of the scheme considered by the Federal Council in April 1956, the Chairman of the Committee, Dr. Shapiro, spontaneously assumed a moral responsibility on behalf of his Committee to ensure repayment to the Association of the cost of Mr. Johns' overseas trip (since it had clearly been intended that Mr. Johns' services were to be made available to the scheme) and of such other monies as could reasonably be related to Mr. Johns' work on behalf of the proposed scheme and also a legal responsibility in respect of the sum of £1,000 which it was agreed should be loaned to the Committee for the inauguration of the scheme. The sum of £3,000 was never mentioned.

(c) That it was the refusal of the Chairman of the Council to pay over the loan of £1,000 voted by the Council to the original Committee on the Economics of Medical Practice which led to the resignation of that Committee on 4 October 1956.

(d) That with Federal Council's confirmation in October 1956 of the withdrawal by the Chairman of the Council of the loan of £1,000, the resignation of the Committee and the abandonment of the entire scheme at that time, any moral obligation which may have rested on previous members of the Committee on the Economics of Medical Practice to ensure that the Association was reimbursed for any expenditure incurred by the Association in respect of Mr. Johns' services to the Association, fell away completely.

(e) That the Plan has discharged its financial obligations to the Association in full in reimbursing the Southern Transvaal Branch for the sum of £103 5s. 3d. advanced to the Steering Committee of the Plan.

(f) That it would be illegal and morally indefensible to bring

* A copy of the memorandum was attached to this letter to the Chairman of Federal Council. Its contents are summarized here—Editor.

into the books of the existing Plan a debt in respect of Mr. Johns' services to the Medical Association prior to April 1956.

My Board feels sure that your Executive Committee will concur in these conclusions. We would request that a copy of this letter be transmitted to all members of Federal Council and that your Executive Committee take such steps as are necessary to correct the erroneous impression created by the publication in the *Journal* of Dr. Theron's letter to the effect that the Plan is morally obligated to the Association for the sum of 'close on £3,000 already spent, as a debt of honour, to be repaid when the Plan was on its legs'.

Medical Services Plan
Johannesburg

Dr. M. Shapiro
Chairman

1. Correspondence (1961): *S. Afr. Med. J.*, 35, 188.

ENDOTRACHEAL ANAESTHESIA

To the Editor: I have read with considerable interest Dr. C. S. Jones' article¹ in the *Journal* for 27 May 1961.

While agreeing in principle that intubation using relaxant drugs is too lightly undertaken, I wonder if the 6 cases quoted do really support the opinion that relaxant drugs and intubation were responsible for producing cardiac arrest?

It is probable that deaths caused solely by relaxant drugs are all caused by anoxia following inadequate ventilation, but the possibility exists that arrhythmias induced by direct action on the conducting system can lead to cardiac failure. After successful intubation, death can occur directly, as a result of reflexes set up by the passage of the tube; or indirectly as a result of bronchospasm, most likely when gallamine triethiodide is used.

It is difficult to comment with profit on such brief histories as printed and I hope the attempt may not be entirely without value.

Case A. Arrest occurred 20 minutes after induction and no difficulties were mentioned. I do not think any conclusion as to cause of death can be arrived at, and to blame the relaxant and tube would be the fallacy of '*post hoc ergo propter hoc*'.

Case B. In this case the first intimation of trouble was the colour of the skin as noted by the surgeon. One cannot but wonder if there had been relative anoxia for some time. Failure of the heart to restart, even for a time, surely suggests that the heart had previously been damaged by anoxia.

Case C. This is very similar to the last case and is it not possible that there was sub-oxygenation during the time the patient was being positioned and prepared for laminectomy? Is it significant that, again, arrest was diagnosed by the surgeon virtually on making the incision?

Case D. It is almost certain that anoxia caused solely by technical difficulties in intubation is responsible for the present state of the patient.

Case E. It is tempting to speculate on whether death was not caused by a combination of anoxia and hypercarbia resulting from trichlorethylene-induced hyperpnoea. I wonder if this case occurred recently or some years ago? To wait 4 or 5 minutes before performing thoracotomy seems not to be in accordance with present practice.

Case F. . . . Anaesthesia was apparently uneventful. Surely it is unreasonable to indict the uneventful anaesthetic for the changes which occurred in the brain? In fairness to the anaesthetist concerned, we should consider it at least equally likely that brain damage resulted from surgical intervention.

I fully agree that the use of endotracheal techniques using relaxant drugs should not be abused. However, to use the second plane of third-stage ether-anaesthesia to perform laryngoscopy and intubation, is to deny the patient many advantages available today.

Peter K. Storah
Hon. Consultant Anaesthetist

Llewellyn Hospital
Kitwe
Northern Rhodesia
12 June 1961

1. Jones, C. S. (1961): *S. Afr. Med. J.*, 35, 421.

SOUND ANAESTHETIC PRACTICE

To the Editor: With a massive sigh of relief I read Dr. Mostert's letter¹ dealing with Dr. Jones' anaesthetized ideas² on sound anaesthetic practice.

Not being a member of the select diplomaed disciples of Morpheus (Pluto, according to Dr. Jones), but just a rather unwilling giver

of a fair amount of 'dopes', I can now at least count on one witness for the defence whenever the occasion arises, and that seems inevitable, when the judge addresses me thus:

'It has been proved beyond doubt, young man, that you have killed the deceased by persisting in premeditated stupidity and indulging in dangerous anaesthetic pyrotechnics even after my assessor's warning article appeared in the *Journal* you are supposed to read. Take him away sergeant.'

Thank you for the publication of Dr. Mostert's letter.

P. A. Rens

335 Main Road
Paarl
14 June 1961

1. Correspondence (1961): *S. Afr. Med. J.*, 35, 488.
2. Jones, C. S. (1961): *Ibid.*, 35, 421.

PAMPHLETS AND SAMPLES

To the Editor: I should like to support Dr. I. Frack's plea¹ for some cooperation from pharmaceutical firms in the matter of pamphlets and samples.

Complaints have long been made in the British medical press about the same thing, but apparently without success. Now that we have in South Africa an Association of pharmaceutical firms dedicated to the maintenance of a high standard of ethical products, perhaps they could cooperate with the Medical Association in drawing up a common-sense code of advertising for drug companies.

At the hospital we all collect our post from one office. Next to the counter is a large cardboard carton with a capacity of 40 or 50 gallons. This has had to be provided because the waste-paper basket could not cope with the discarded 'dope sheets' of drug companies that flood the hospital.

The sooner representatives of pharmaceutical firms realize that doctors are not Springbok Radio fans or cinemagoers, who have to be duped with bigger and better multicoloured, large-typed, spectacular pamphlets, the sooner will they be treated with some consideration. What use is a trial sample of two tablets in an enormous packet for a condition that normally requires a week's treatment?

I have never been able to reconcile salesmanship with medical treatment, but obviously the drug companies have much to offer and we cannot do without them; only let them use a little less salesmanship and a little more common-sense.

I. Kennedy

King Edward VIII Hospital
Durban
12 June 1961

1. Correspondence (1961): *S. Afr. Med. J.*, 35, 463.

PERTUSSIS IMMUNIZATION

To the Editor: I have been asked to write to you on this subject in order to bring it to the attention of general practitioners who play such an important part in general immunization procedures.

At the Executive Committee meeting of the Medical Officers of Health (State Medicine) Group of the Medical Association of South Africa, held on the 9 June 1961, the attention of members was drawn to an article published in the *British Medical Journal* dated 22 October 1960, on the above subject.

This article investigated the incidence of neurological complications following pertussis (triple vaccine) inoculations and compared these complications with the complications arising during the course of pertussis itself. The authors consider that, because of the increasingly mild nature of whooping cough with its very low mortality in Sweden, it is questionable whether universal vaccination against it is now justified.

The Group feels that while this state of affairs has not been reached in South Africa, and immunization against pertussis must be continued, it would like to recommend strongly that this immunization be undertaken as early as possible in the infant's life, and certainly never after the age of two years.

In administering a primary course of immunization, it should be combined with the diphtheria and tetanus antigens as a triple vaccine, and in administering 'booster' inoculations after two years of age, the pertussis should be omitted.

A. H. Smith
Hon. Secretary,
M.O.H. (State Medicine) Group of M.A.S.A.
12 June 1961